TO:	**CHAIR AND MEMBERS** **STRATEGIC PRIORITIES AND POLICY COMMITTEE** **MEETING OF DECEMBER 11, 2017**
FROM:	**GEORGE KOTSIFAS, P.ENG.** **MANAGING DIRECTOR, DEVELOPMENT & COMPLIANCE** **SERVICES & CHIEF BUILDING OFFICIAL**
SUBJECT:	**2019 DEVELOPMENT CHARGES (DC) STUDY -** **GROWTH PROJECTIONS**

RECOMMENDATION

That, on the recommendation of the Managing Director, Development and Compliance Services & Chief Building Official, the following actions **BE TAKEN** with respect to the Development Charges study growth forecast:

(a)   The attached final report prepared by Watson and Associates Economists entitled "City of London Population, Housing and Employment Growth Forecast, 2016 to 2044" (Appendix "A") **BE RECEIVED** for information; and

(b)   The housing and non-residential reference growth scenarios outlined in the Watson report **BE ENDORSED** for use in the 2019 Development Charges Study.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

August 29. 2016   "2019 Development Charge Study - Policy Review Scoping Report", Strategic Priorities and Policy Committee

BACKGROUND

The Development Charges legislation in Ontario requires that municipal Development Charge By-laws be reviewed at least every five (5) years. The current City By-law will expire on August 4, 2019. The compilation of a detailed background study reviewing forecasted growth and infrastructure requirements to service anticipated new residential and non-residential development needs to occur prior to completion of a new DC by-law coming into force.

Section 5(1) of the Development Charges Act identifies the methodology that must be used when preparing a Development Charges By-law. The first step requires that the "anticipated amount, type and location of development, for which development charges can be imposed, must be estimated."

To satisfy this requirement, in November 2016 Development Finance retained Watson & Associates Economists through a Request for Proposals process to prepare growth forecasts for population, employment, housing and non-residential construction (industrial, commercial and institutional) to the year 2044. The growth forecasts provide an important foundation for the 2019 Development Charges Study and associated engineering master servicing plans to determine infrastructure requirements.

OVERVIEW OF GROWTH FORECASTS

Growth forecasts represent an informed estimation of future conditions. Forecasted results are based on past and present economic, demographic and construction trends. Assumptions are made about changes that are likely to take place over time to produce future estimates. These assumptions are based on research, acquired technical knowledge, and established projections methods. While every effort is made to develop accurate projections, they cannot be considered precise predictions of the future. A full description of methods, data and results is provided in the attached draft report. The following represents highlights of the report and its findings.

Methods Used to Prepare Growth Forecasts

Watson uses a combined forecasting approach to derive growth projections, which incorporates both the traditional "top-down" cohort-survival forecast methodology and a "bottom-up" household formation methodology. The methods used for these models are well accepted in the industry and have been used by Watson & Associates to model growth in many other cities across Canada.

In general, the forecast begins with an examination of the London economy within the context of the international, national, provincial, regional and local economy. Prospects for growth are considered by economic sector and an employment forecast is prepared. The employment forecast largely determines the population projections since employment is the key motivation for migration, which drives population growth.

Forecasts for future population are based on a cohort survival model (births minus deaths plus net migration by sex for five year age groups) that is consistent with the population projection methodology guidelines established by the Ministry of Municipal Affairs. Population forecasts are converted through Watson's housing demand model to project anticipated household growth for the City. Potential household growth is a function of the projected population by age using headship rates (number of people in each age group who are projected to head up a household). Watson also considered demand by structure type using historical housing activity and the relationship between family type, dwelling type and housing preferences as the population ages.

With respect to non-residential growth, the employment forecast also informs the anticipated future industrial, commercial and institutional floor space demand by the use of floor space to employment ratios.
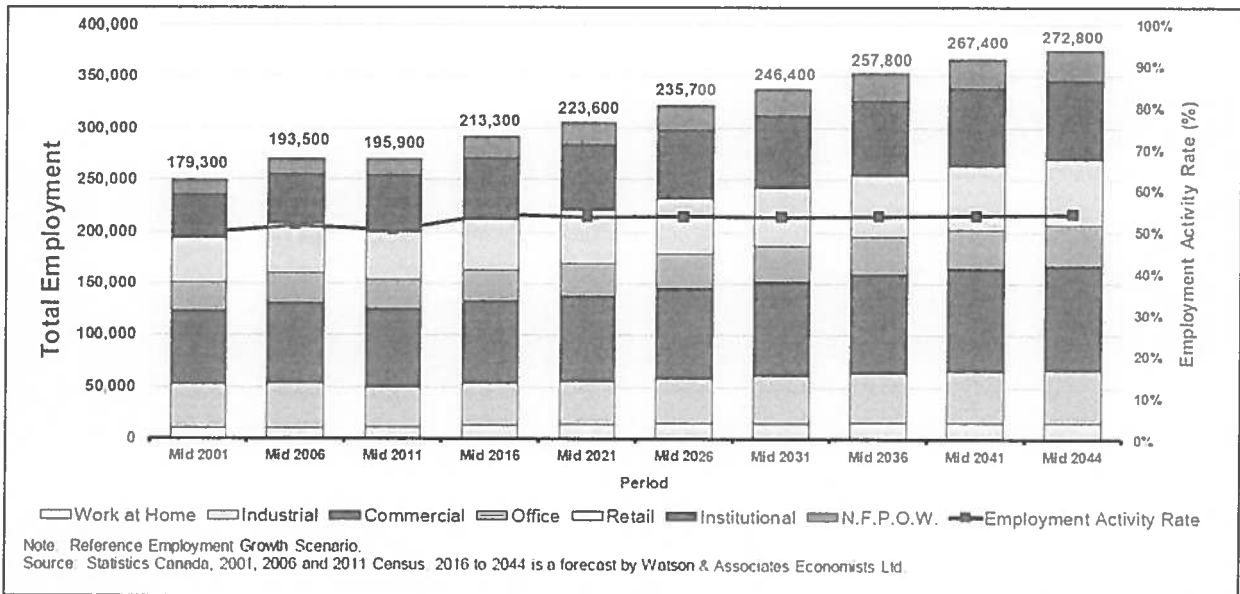
Results

The projections report contains results for employment growth, population growth, residential growth by dwelling type, industrial, commercial and institutional floor space requirements, as well as high growth and low growth scenarios for the projection period of 2016 to 2044.

Employment Projections

Labour force growth is a key driver for increases in population as new job opportunities (both locally and within the City's commuter shed) support growth in migration to the City. Based on labour force trends and future local employment growth prospects, Watson recommends using the baseline or 'Reference' employment growth scenario which forecasts an average increase of approximately 2,100 jobs annually within the City. A summary of key findings include:

- Employment growth is expected across a wide range of sectors driven by continued diversity of the regional and local economic base and steady local population growth.

- It is forecasted that the employment base will increase by 33,100 by 2031 or an annual growth rate of 1.0%. During the latter portion of the period, the annual employment growth rate is forecast to slow, largely as a result of the aging population and labour force base.

- Over the period, the City's employment activity rate (ratio of jobs to population) is forecast to remain relatively stable at 56%.

- Forecasted employment by major sector and employment activity rates by 5-year period are shown on Figure 1.

FIGURE 1: EMPLOYMENT FORECAST BY MAJOR SECTOR (2016-2044) AND EMPLOYMENT ACTIVITY RATE

Note. Reference Employment Growth Scenario.
Source: Statistics Canada, 2001, 2006 and 2011 Census. 2016 to 2044 is a forecast by Watson & Associates Economists Ltd.

Population Growth

Watson also recommends using the Reference population growth scenario which forecasts London's population to continue to grow throughout the forecast period at an annual average rate of 0.9% to 2044. Figure 2 provides total anticipated population in 5 year increments as well as the projected yearly growth rate for each 5 year period. The following is of note:

- Population growth associated with natural increase (births less deaths) is forecast to steadily decline due to the continued aging of the City's population.

- Net migration represents the primary driver of long-term population growth. This will be largely driven by economic growth prospects in the regional economy together with the City's attractiveness as a place to live and work.

- The City is anticipated to experience relatively strong net migration across all major age groups, particularly between 2016 and 2031 that result in a higher annual population growth rate during this period. An average of approximately 3,500 net migrants are expected annually to 2041.

- The City's annual population growth rate between 2016 and 2031 is forecast to average 1.1% annually, declining to 0.6% during the 2031 to 2044 period as the population and labour force base ages.

FIGURE 2: POPULATION FORECAST (2016-2044) AND ANNUAL GROWTH RATE
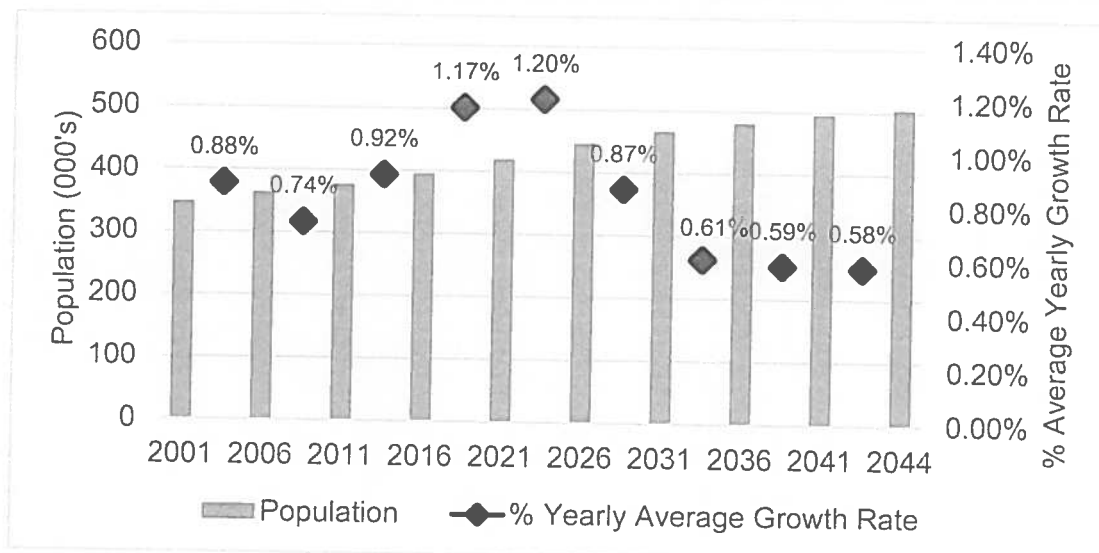
Residential Construction

Within the forecast period of 2016 to 2044, construction of London's new housing stock is anticipated to diversify by structure type. Figure 3 shows the forecasted amount and type of residential growth by 5-year period. In summary:

- Watson anticipates that there will be a need for 59,600 new residential units to 2044, an average of over 2,100 annually.

- An increased demand for housing units is forecasted from 2016-2026 in response to higher average growth rates during this period. This is primarily due to forecasted strong net migration and increases in the labour force base.

- Over the projection period, an increase in demand toward medium density (townhouse) and high density (apartment) housing is forecasted. Housing demand is forecast to be comprised of 44% low-density housing, 23% medium-density housing and 33% high-density housing between 2016 and 2044.

FIGURE 3:   ANNUAL RESIDENTIAL GROWTH FORECAST SUMMARY (2016-2044)

Annual Household Growth, City of London, 1996 - 2044				
	Singles and Semis	Row	Apartments and Other	Total
Census Periods		Occupied Dwellings Units		
1996-2001 a	1,083	34	501	1,618
2001-2006 a	625	636	293	1,554
2006-2011 a	1,181	46	408	1,635
2011-2016 a	662	378	861	1,901
2016-2021 e	1,128	516	704	2,348
2021-2026 f	1,062	518	670	2,250
2026-2031 f	894	466	670	2,030
2031-2036 f	892	500	686	2,078
2036-2041 f	772	474	732	1,978
2041-2044 f	693	490	857	2,040
2016-2044				
Avg. Annual	922	494	710	2,126
Total	25,819	13,840	19,881	59,540
	Percent Distribution			
Census Periods				
1996-2001 a	67%	2%	31%	100%
2001-2006 a	40%	41%	19%	100%
2006-2011 a	72%	3%	25%	100%
2011-2016 a	35%	20%	45%	100%
2016-2021 e	48%	22%	30%	100%
2021-2026 f	47%	23%	30%	100%
2026-2031 f	44%	23%	33%	100%
2031-2036 f	43%	24%	33%	100%
2036-2041 f	39%	24%	37%	100%
2041-2044 f	34%	24%	42%	100%
2016-2044	43%	23%	33%	100%

Totals may not add up due to rounding
a: Final Statistics Canada census data
e: Estimates based on actual building permit data from City of London
f: Forecasts by Watson & Associates Economists Ltd.

Source: Watson & Associates Economists Ltd based on data from Statistics Canada Census and from City of London building permit data

Industrial, Commercial and Institutional Floor Space Requirements

Non-residential construction for the projection period is based upon industrial, office, commercial and institutional space demand derived from projected employment for each land use category.

- Industrial: Watson anticipates continued demand for new industrial space over the forecast period, with an additional 8,692,000 square feet in total required by 2044. This equates to an average of 308,600 square feet per year.

- Commercial/Office: This sector is largely driven by local and regional population growth. Employment growth is forecast to increase by approximately 23,200 jobs over the 2016 to 2044 period, accounting for 39% of total employment growth. This would result in an

additional 8,077,000 square feet in total required by 2044, which equates to an average of 358,400 square feet per year.

- Institutional: The City's institutional employment base is anticipated to steadily increase, largely driven by the need for increased health services, education and other institutional facilities associated with steady population growth. An average of 393,800 square feet of space is anticipated annually.

Comparison with 2014 Development Charge Forecast

The following chart shows the forecast population relative to the previous London 2012 forecast. As shown on the chart below, the 2017 Watson forecast anticipates a slightly higher population for the City between 2021 and 2041. This increase is attributed to an improved mid-term economic outlook when compared to when the last projections were completed in 2012.

FIGURE 4:   2012 vs. 2017 POPULATION FORECAST (2016-2044)
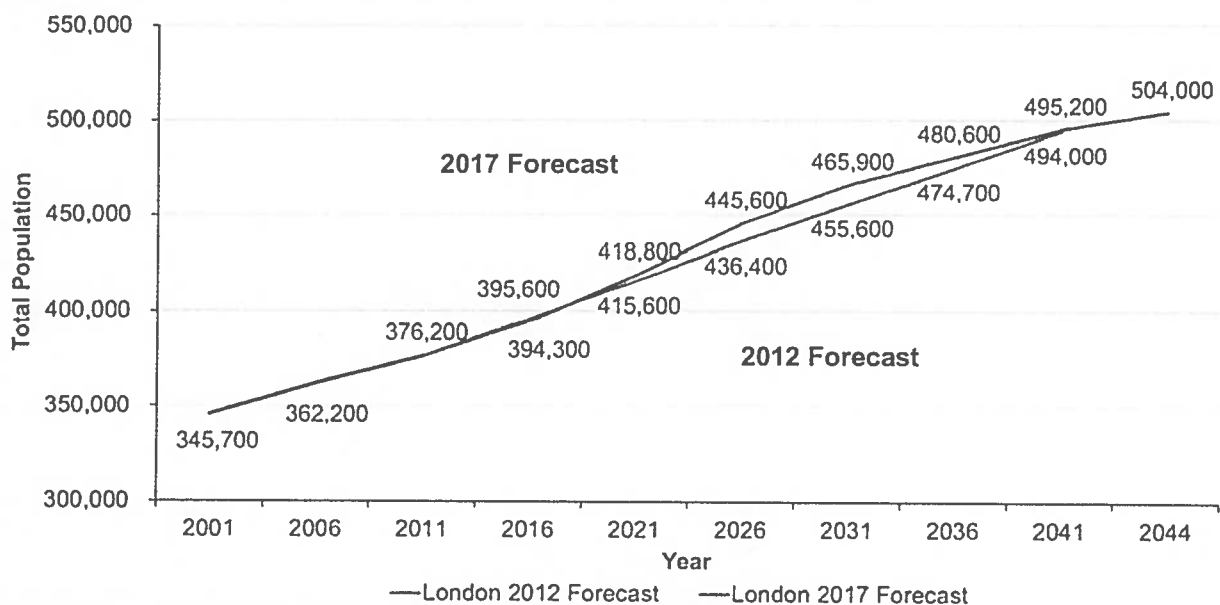
Source: London 2012 forecast is based on Altus Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario, 2011 Update.

Stakeholder Consultation

On July 25 2017, Watson presented a draft growth forecast report to the Development Charges External Stakeholder Committee as represented by the Urban League, London Development Institute and the London Home Builder's Association. The draft report was distributed and comments and a peer review were subsequently received from the stakeholders. In summary, the stakeholder comments requested further review of the following elements:

- modelling at the Middlesex County census area level;
- natural change analysis (anticipated births and deaths);
- anticipated headship rates and the propensity model that was used;
- the magnitude of the anticipated long-term housing forecast shift from low- to medium- and high density units; and
- anticipated employment, particularly in the later part of the forecast horizon.

The stakeholder comments and responses from Watson are included in Appendix B and C.

Following this dialogue, Watson prepared revised growth forecasts that were presented to the external stakeholders again on October 10 2017. Relative to the draft July 2017 report, the revised forecast reflects the following changes:

- a slightly higher long-term population and housing forecast reflective of higher population at the Middlesex County level (including the City of London) and stronger labour force growth relative to historical trends;
- a minor increase in the share of population derived from natural increase (births less deaths);

- an increased share of forecasted housing growth derived from low-density households; and
- higher forecasted labour force and employment growth as well as associated gross floor area.
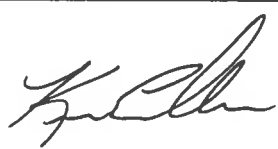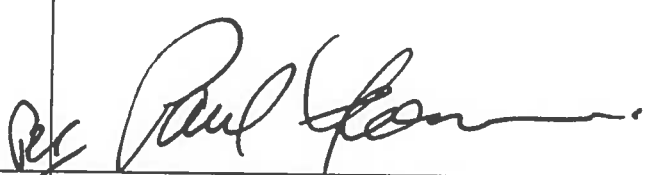
The final report has been distributed to the stakeholders. No further comments have been received at the time of the preparation of this report.

In addition, the growth forecasts have been discussed with an Internal Steering Committee comprised of the City Treasurer, City Planner, Manager-Long Range Planning and Research, City Engineer, Director of Transportation, Director of Water and Wastewater, and Managing Director, Development and Compliance Services and Chief Building Official.

CONCLUSION

The Watson & Associates employment, population, housing and non-residential space projections provide important basis for the 2019 Development Charges Background Study. The projections have used a methodology that is consistent with provincial guidelines and similar studies prepared for other municipalities across Ontario.

For the purposes of determining the anticipated amount and type of development as required by the Development Charges Act, it is recommended that the housing and non-residential reference growth scenarios identified in the Watson report be used in the City's 2019 Development Charges Study.

PREPARED BY:	REVIEWED BY:
KEVIN EDWARDS, MCIP, RPP MANAGER, DEVELOPMENT FINANCE DEVELOPMENT & COMPLIANCE SERVICES	PAUL YEOMAN, RPP, PLE DIRECTOR, DEVELOPMENT SERVICES
REVIEWED BY:	**RECOMMENDED BY:**
GREGG BARRETT, AICP MANAGER, LONG RANGE PLANNING AND RESEARCH	GEORGE KOTSIFAS, P. ENG MANAGING DIRECTOR, DEVELOPMENT & COMPLIANCE SERVICES AND CHIEF BUILDING OFFICIAL

December 1, 2017

cc. John Fleming, Managing Director, Planning and City Planner
Anna Lisa Barbon, Managing Director, Corporate Services and City Treasurer
Kelly Scher, Managing Director, Environmental & Engineering Services and City Engineer
Edward Soldo, Director - Roads and Transportation
Scott Mathers, Director - Water and Wastewater
Gregg Barrett, Manager, Long Range Planning and Research
Donna Baxter, Manager, Policy and Planning Support, Neighbourhood Services

Appendix 'A': **'City of London Population, Housing and Employment Growth Forecast, 2016 to 2044 Final Report' prepared by Watson and Associates**

Appendix 'B': **Memo from Watson "re: Altus Peer Review Comments on City of London Growth Projections", October 5 2017**

Appendix 'C': **Memo from Watson "re: Comments from Sandy Levin of the Urban League of London"**

City of London
Population, Housing and Employment Growth
Forecast, 2016 to 2044

Final Report

November 17, 2017

Contents

Executive Summary

The City of London retained Watson & Associates Economists Ltd. (Watson) to undertake a Growth Projections Study as background to the City's upcoming 2019 Development Charges (D.C.) Background Study. The purpose of this study is to provide an updated population, housing, and employment growth forecast to the year 2044 for the City based on a detailed assessment of provincial, regional and local economic trends influencing long-term local growth potential and development patterns. The long-term growth forecasts provided herein represent an update of the City's 2012 growth projections completed by Altus Group.[1] The City has identified the following key issues to be addressed as part of this study:

- What is the City's long-term labour force and employment growth potential in five-year increments for the period 2016 to 2044? What are the employment trends by sector for the London Census Metropolitan Area (CMA) and the City of London? Where are these residents travelling to/from for work?
- What is the City's long-term population growth potential in five-year increments to 2044? How is the City's population age structure forecast anticipated to change over the long-term projection period? What is the projected natural increase and what are the overall net migration trends for the City of London?
- Based upon a range of long-term population growth forecast scenarios (i.e. low, reference and high growth scenarios), what level of future housing growth is the City of London likely to achieve? What are the anticipated trends in forecast household formation?
- What are the main demographic, economic and socio-economic forces driving the amount, type, timing and location future housing development and non-residential space needs by major sector?

As part of the study process, detailed discussions were held with the Development Charges External Stakeholder Committee, during the Summer of 2017, with respect to the draft report findings. This was followed up with a presentation of the final results of the study to the Stakeholder Committee in the Fall of 2017 in response to comments and correspondences received by this group on the draft projections.

The results of this analysis are intended to guide the decision making and policy development specifically related to planning and growth management, municipal finance

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[1] Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario, 2011 Update. 2012

and infrastructure planning carried out for the City of London. More specifically, this growth projections study will be used as a background to the City's Development Charges (2019 DC) Background Study. The following provides a summary of the key findings of this report with respect to long-term forecast population, housing and employment trends for the City of London.

Approach and Methodology

The population, household and employment forecast methodology adopted for this study is based on a combined approach, which incorporates both the traditional "top-down" cohort-survival forecast methodology (i.e. population by age-cohort) and a "bottom-up" household formation methodology. This combined approach is adopted to ensure that both regional economic/ demographic trends and local housing market conditions are adequately assessed in determining the City's long-term residential and non-residential growth potential.

Macro-Economic Trends

The 2008/2009 global economic downturn hit Ontario relatively hard, with significant declines in manufacturing output particularly in the auto sector and in construction. While the Ontario economy has experienced a rebound in economic activity since 2009, this recovery has been relatively slow to materialize. That said, provincial Gross Domestic Product (GDP) levels have sharply rebounded since 2014 and are forecast to remain well above the national average in 2017. Stronger provincial economic growth is attributed, in part, to steady improvement in the economic outlook for the United States (U.S.) and an improving export market due, in part, to a lower-valued Canadian dollar.[1]

Situated between Toronto and Detroit, the City of London serves as a regional economic hub across a broad range of goods-producing and service-providing sectors. The City of London has a strong concentration of employment sectors in manufacturing, health care and social services, education, and finance and insurance. Combined, these sectors create a strong and diverse employment base for the City.

The City of London has recently experienced a gradual rebound in employment growth within its local industrial sector, led by the transportation and warehousing sector and assisted by moderate employment growth in the manufacturing sector. Looking forward, the City is anticipated to experience moderate industrial employment growth in

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[1] Valued at approximately $0.78 U.S. as of November, 2017.

sectors related to advanced manufacturing, construction, wholesale trade as well as transportation and warehousing.

Similar to the Provincial economy, regional and local employment growth prospects within the City of London are anticipated to be strongest in the knowledge-based industry. A few emerging sectors within the City's knowledge-based or "creative-class" economy have shown strong employment growth over the past decade and are anticipated to experience steady growth over the long-term. This includes sectors such as professional, scientific and technical services, health care and social assistance, education, information, cultural and recreation, finance, insurance, real estate and leasing, and public administration. These sectors also anticipated to generate continued spin-off effects on the City's growing industrial and commercial business base.

Recent Demographic and Housing Market Trends within the City of London

Over the past 25 years, the City of London has experienced moderate to steady population growth across all major demographic groups (i.e. children, adults and seniors), largely driven by steady net migration across all ages as well as steady population growth from natural increase (i.e. births less deaths). Over the past several decades, residential development activity within the City of London has been strongly weighted towards ground-oriented housing forms, concentrated within the City's greenfield areas, however the City has experienced a gradual increase in the share of medium and high-density development over the past decade.

The City's population is getting older on average due to the aging of the Baby Boomers. The first wave of this demographic group turned 70 years of age in 2016. Between 2016 and 2041, the population that is 65 years of age and older will increase from 16% to 23% within the City of London. This represents an increase of just over 48,000 people over this time period.

Not only is the Baby Boom age group large in population, but it is also diverse with respect to age, income, health, mobility, and lifestyle/life stage. Accommodating older seniors is a key planning issue across Ontario municipalities including the City of London, as a growing percentage of the population will reach 75 years of age and older over the next 15 years. The continued aging of the City's population is anticipated to drive the need for seniors' housing and other housing forms geared to an aging population (i.e. assisted living, affordable housing, adult lifestyle housing) over the next several decades.

Future housing needs in the City of London will also be increasingly impacted by the "Millennial" generation. This cohort represents a large percentage share of the City of London population. Given the age and size of this cohort, Millennials play a key role regarding future housing demand as well by providing a growing labour force supply for the City in both traditional industries and emerging knowledge-based sectors.

As the City's designated urban lands continue to mature, a growing share of new residential development is expected to occur within the City's intensification nodes, corridors, and other redevelopment areas within existing built-up areas. This shift in development patterns, along with the demographic trends discussed above, are anticipated to result in a gradual increase in the share of high-density housing forms (i.e. low-, medium- and high-rise apartments) within the City over the medium-and long-term.

Residential and Non-Residential Land Supply

A major factor in the future competitiveness of London's economic base, which is largely controllable by the City, relates to the supply of its serviced and serviceable vacant residential and non-residential lands. The City of London has a significant supply of future housing within its vacant lands inventory totalling just over 67,000 potential housing units. This level of housing supply is more than sufficient to accommodate the City-wide housing forecast to the year 2044. London also contains a sufficient City-wide supply of housing units across a wide-range of housing types which are currently identified in active development plans. Further consideration, however, will need to be given to the location of the City's housing supply in accordance with anticipated short- to medium-term housing demand. This assessment will help inform and prioritize the phasing of the City's future greenfield planning areas.

The City of London also has an ample supply of designated vacant employment lands to accommodate industrial growth over the long-term estimated at just over 1,200 ha (2,965 acres). Notwithstanding the adequacy of the City's supply of vacant designated employment lands, London's inventory of "shovel-ready"[1] employment lands is limited to approximately 146 ha (361 acres). To ensure that employment development on employment lands is not unduly constrained, the City should explore options which would encourage the servicing of additional privately owned industrial lands.

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[1] Shovel-ready employment lands are defined as employment lands that are designated, serviced and have the potential to be developed within a short timeframe (within 6 months).

Population, Household and Employment Growth Scenarios

Future population, housing and employment growth within City of London is dependent in large measure by the following:

- The success of the broader Provincial economy in attracting new investment and retaining existing business;
- The growth and competitiveness of the regional export-based economy (i.e. London CMA) and surrounding primary and secondary commuter-shed;
- The ability of the City to position itself as a hub for innovation to capitalize on the human capital that currently exists within the region while encouraging ongoing entrepreneurship, small business development and investment retention;
- The City's attractiveness to families, which are drawn to the City in search of competitively priced, ground-oriented housing within proximity to local and regional employment markets;
- The City's attractiveness to the 55+ age group as a retirement/future retirement destination; and
- The timing planned for major infrastructure improvement/expansions.

The above factors will each contribute to the level of potential growth in labour, employment, net migration, and new housing development expected across the City of London over the next several decades. The following provides a summary of the key findings of this report with respect to forecast population, housing, and employment trends for the City of London.

Building on the demographic and economic analysis provided throughout this report, a total of three long-term population, housing and employment growth scenarios have been prepared for the City of London, including a Low Population Growth Scenario, Reference Population Growth Scenario, and High Population Growth Scenario. A range of long-term City-wide population, housing and employment growth has been generated from these respective scenarios largely based on varying assumptions regarding future labour force growth potential, corresponding annual net migration and annual demand for new housing non-residential development. Figure 6-4 graphically summarizes the two-alternative long-term population growth forecasts for the City of London as well as the Reference Population Growth Scenario. Each of these three long-term growth scenarios are briefly described below and summarized in Figure ES-1.

Low Population Growth Scenario: The Low Population Growth Scenario assumes that the City will grow at an average annual growth rate of 0.5% per year. This scenario

assumes that net migration will not significantly rise relative to historical trends. As a result of declining natural increase, the City's population growth rate is forecast to steadily decline from 1.0% (2016-2021) to 0.5% (2016-2044) over the long-term planning horizon.

High Population Growth Scenario: Under the High Population Growth Scenario the City's population is forecast to grow at an average annual rate of 1.2% per year. This represents an average annual growth rate which is slightly higher than what the City has achieved in relatively high growth periods such as 2001-2006 and 2011-2016.

Reference Population Growth Scenario: Assumes that the City of London will achieve a 2044 population forecast of 504,000[1], which represents an annual population growth rate of 0.9%. Comparatively, the population for the Province is forecast to increase at an annual rate of 1.0% between 2016 and 2041. In accordance with historical labour force and population growth trends within the London C.M.A., and the City of London as well as a review of forecast economic growth and net migration potential for the City of London, the Reference Population Growth Scenario is recommended as the preferred long-term growth scenario.

Figure ES-1
City of London
Population Growth Projection Scenarios, 2016 to 2044
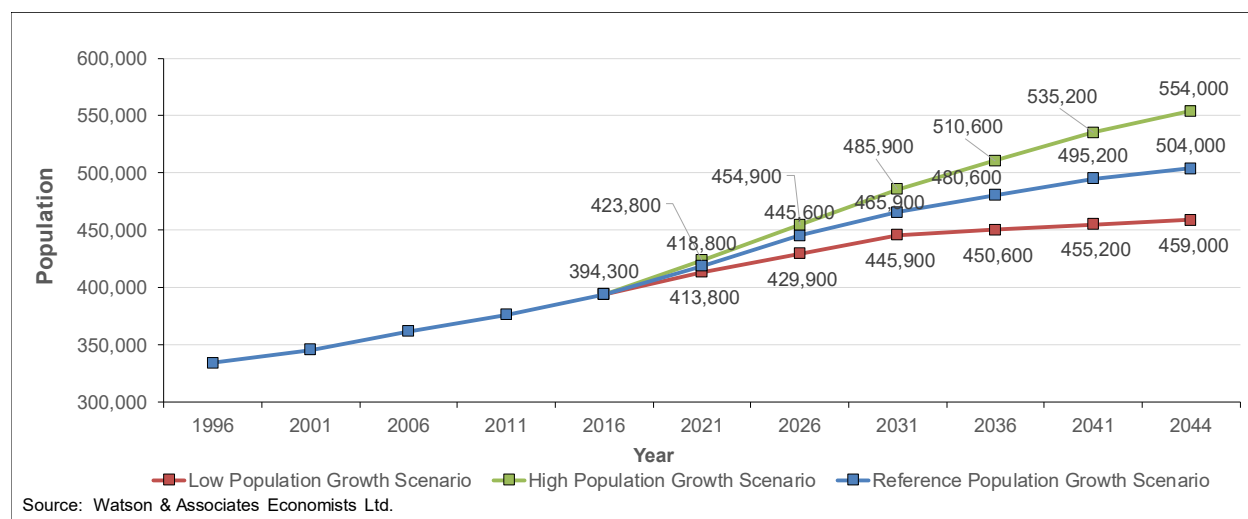
Source: Watson & Associates Economists Ltd.

Similar to the residential growth forecast, three long-term employment growth scenarios have been developed for the City of London, including: 1) Low Employment Growth Scenario; 2) High Employment Growth Scenario; 2) Reference Employment Growth

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[1] Population figures have been upwardly adjusted for the Census undercount by approximately 2.7%.

Scenario. Each of these three long-term growth scenarios are briefly described below and summarized in Figure ES-2.

Low Employment Growth Scenario: The Low Growth Scenario assumes that the City will grow at an average annual growth rate of 0.5% per year and add approximately 1,250 jobs annually.

High Growth Employment Scenario: Under the High Growth Scenario the City's employment base is forecast to grow at an average annual rate of 1.1% per year or 3,090 jobs annually. This represents an average annual growth rate which is slightly lower than what the City has achieved over the past fifteen years (2001-2016 period).

Reference Employment Growth Scenario: The Reference Employment Scenario assumes that the City will grow at an average annual growth rate of 0.9% per year and add 2,130 jobs annually. This represents an average annual growth rate which is lower than what the City has achieved over the past fifteen years (2001-2016 period). Over the 2001-2016 period, the City grew at annual employment growth rate of 1.2% and added 2,270 jobs annually. In accordance with forecast labour force trends by age and future employment growth prospects, by major sector, the Reference employment growth scenario is recommended as the preferred long-term growth scenario.

Figure ES-2
City of London
Employment Growth Projection Scenarios, 2016 to 2044

Source: Watson & Associates Economists Ltd.
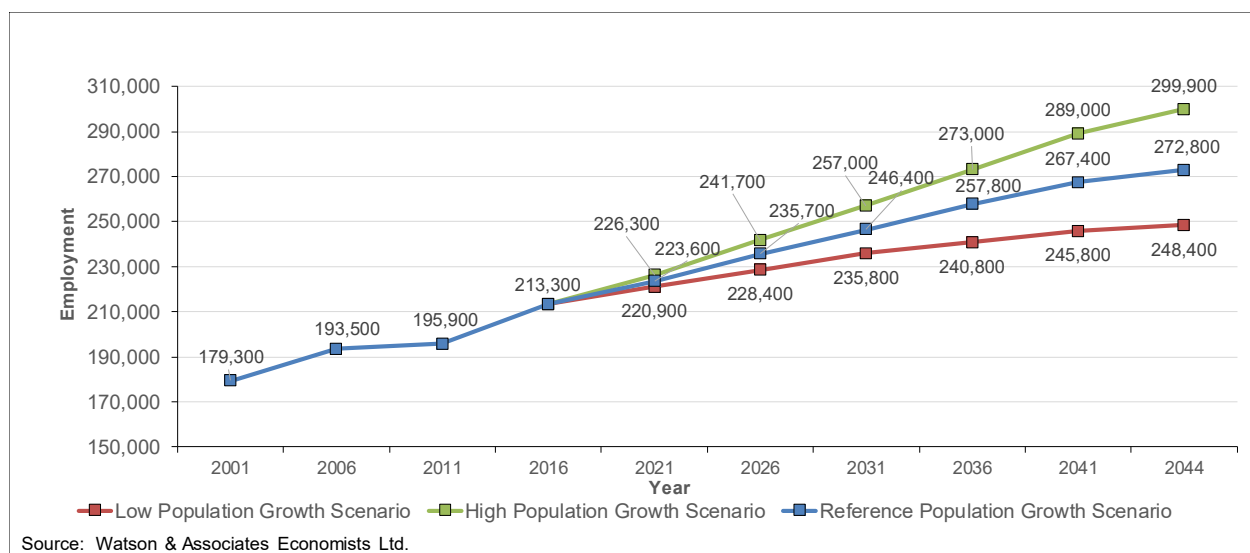
1. Introduction

1.1 Terms of Reference

The City of London retained Watson & Associates Economists Ltd. (Watson) to undertake a Growth Projections Study as background to the City's upcoming 2019 Development Charges (D.C.) Background Study. The purpose of this study is to provide an updated population, housing, employment growth and non-residential floor space forecast to the year 2044 for the City based on a detailed assessment of provincial, regional and local economic trends influencing long-term local growth potential and development patterns. The long-term growth forecasts provided herein represent an update of the City's 2012 growth projections completed by Altus Group.[1] The City has identified the following key issues to be addressed as part of this study:

1) What is the City's long-term labour force and employment growth potential in five-year increments for the period 2016 to 2044? What are the employment trends by sector for the London Census Metropolitan Area (CMA) and the City of London? Where are these residents travelling to/from for work?

2) What is the City's long-term population growth potential in five-year increments 2044? How is the City's population age structure forecast anticipated to change over the long-term projection period? What is the projected natural increase and what are the overall net migration trends for the City of London?

3) Based upon a range of long-term population growth forecast scenarios (i.e. low, reference and high growth scenarios), what level of future housing growth is the City of London likely to achieve? What are the anticipated trends in forecast household formation?

4) What are the main demographic, economic and socio-economic forces driving the amount, type, timing and location future housing development and non-residential space needs by major sector?

As part of the study process, detailed discussions were held with the Development Charges External Stakeholder Committee, during the Summer of 2017, with respect to the draft report findings. This was followed up with a presentation of the final results of

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[1] Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario, 2011 Update. 2012

the study to the Stakeholder Committee in the Fall of 2017 in response to comments and correspondences received by this group on the draft projections.

1.2   Report Structure

To assist the City in assessing its long-term growth forecast, this report addresses the following major discussion topics:

- Review of macro-economic and demographic trends influencing residential and non-residential development patterns in the province of Ontario, London CMA and the City of London;
- Forecast population growth by age cohort, 2016 to 2044;
- Anticipated housing growth by structure type (low-, medium- and high-density), 2016 to 2044;
- Forecast employment growth by major employment sector/category (primary, industrial, commercial, institutional, work at home and no fixed place of work); and
- Forecast non-residential space needs by industrial, commercial and institutional employment sector, 2016 to 2044.

2. Approach and Methodology

The population, household and employment forecast methodology adopted for this study utilises a combined forecasting approach, which incorporates both the traditional "top-down" cohort-survival forecast methodology (i.e. population by age-cohort) and a "bottom-up" household formation methodology. This combined approach is adopted to ensure that both regional economic/demographic trends and local housing market conditions are adequately assessed in developing the City's long-term growth potential.

2.1 Economic Base Model

Local/regional economic activities can be divided into two categories: those that are "export-based," and those that are "community-based." The export-based sector is comprised of industries (i.e. economic clusters) which produce goods that reach markets outside the community (e.g. agriculture and primary resources, manufacturing, research and development). Export-based industries also provide services to temporary and seasonal residents of the municipality (hotels, restaurants, tourism-related sectors, colleges and universities) or to businesses outside the municipality (specialized financial, professional, scientific and technical services). Community-based industries produce services that primarily meet the needs of the residents in the City (retail, medical, primary and secondary education, and personal and government services). Ultimately, future population and housing growth within the City of London has been determined in large measure by the competitiveness of the export-based economy within the City and the surrounding market area. In developing the long-term labour force and population forecast for the City of London, a review of key regional and local economic growth drivers was also considered. The approach is illustrated schematically in Figure 2-1.

Figure 2-1
Population and Household Project Model
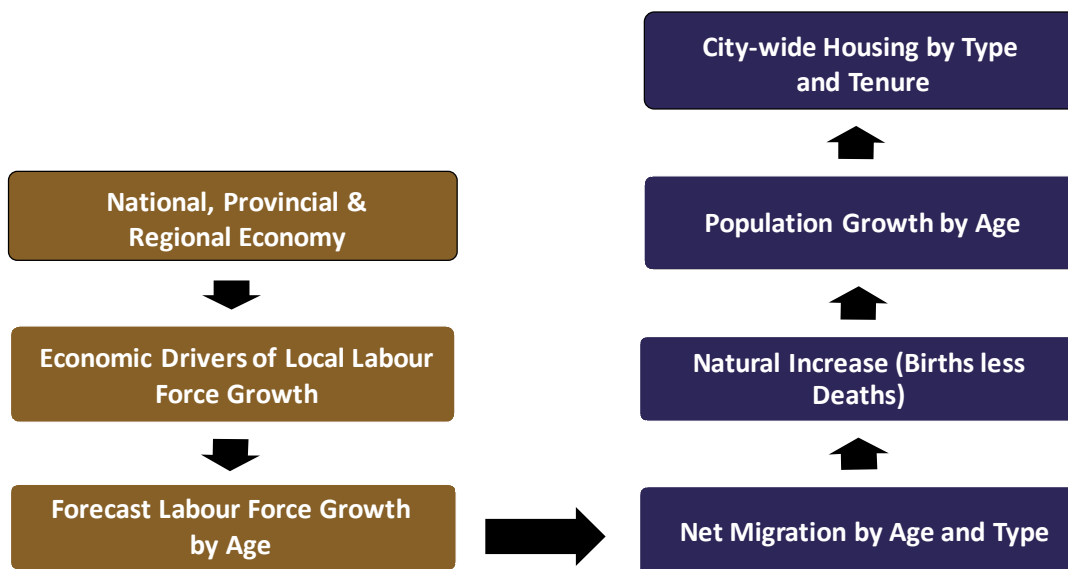
2.2 Cohort-Survival Population and Household Forecast Methodology

The cohort-survival population forecast methodology uses, as its base, population age groups by sex, and ages each group over time, taking into consideration age-specific death rates and age-specific fertility rates for the female population in the appropriate years (to generate new births). To this total, an estimated rate of net migration is added (in-migration to the municipality, less out-migration, by age group).

Forecast trends in population age structure provide important insights with respect to future housing needs based on forecast trends in average household occupancy. Total housing growth is generated from the population forecast by major age group using a headship rate forecast.

A headship rate is defined as the number of primary household maintainers or heads of households by major population age group (i.e. cohort). Average headship rates do not tend to vary significantly over time by major age group; however, the number of maintainers per household varies by population age group. For example, the ratio of household maintainers per total housing occupants is higher on average for households occupied by older cohorts (i.e. 55+ years of age) as opposed to households occupied by adults 29 to 54 years of age. This is important because, as the City's population ages,

the ratio of household maintainers is anticipated to increase. The average headship rate represents the inverse of the average number of persons per unit (PPU). As such, as the City's population ages over time, the average PPU is forecast to steadily decline as the ratio of household maintainers per total housing occupants increases. Figure 2-2 summarizes the cohort-survival forecast methodology. The cohort-survival population forecast approach is a provincially accepted approach to projecting population and corresponding total household formation.[1]

Figure 2-2
Cohort-Survival Population and Household Forecast Methodology

POPULATION FORECAST BY AGE COHORT, 2016-2044

↓

HEADSHIP RATE FORECAST BY AGE COHORT, 2016-2044

↓

FORECAST TRENDS IN CITY-WIDE HOUSING OCCUPANCY

↓

TOTAL HOUSEHOLDS BY AGE OF HOUSEHOLD MAINTAINER
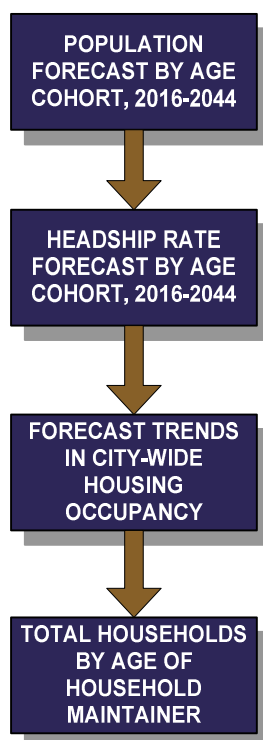
As a requirement of the development charge calculation, the population forecast has been allocated between existing and new households. This forecasting approach has been developed in accordance with the Provincial Projection Methodology Guidelines and industry best practices.[2] This approach focuses on the rate of historical housing construction in the City of London and surrounding area, adjusted to incorporate supply and demand factors by geographic area, such as servicing constraints, housing units in

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[1] Projection Methodology Guideline. A Guide to Projecting Population, Housing Need, Employment and Related Land Requirements. 1995.
[2] Projection Methodology Guideline. A Guide to Projecting Population, Housing Need, Employment and Related Land Requirements. 1995.

the development process, as well as historical housing demand. Population is then forecast by developing assumptions on average household size by unit type, taking into consideration the higher average occupancy of new housing units and the decline in PPU over time within existing households.

2.3 Forecast Households by Structure Type

Forecast households have been categorized by the following structure types:

- Low Density (singles/semi-detached);
- Medium Density (townhomes); and
- High Density (apartments).

Forecast housing growth by structure type has been developed based on the following supply and demand factors:

Supply Factors

- Supply of potential future housing stock in the development process by housing type and approval status;
- Lag-time between housing starts and completions;
- Housing intensification opportunities;
- Current inventory of net vacant designated urban "greenfield" lands not currently in the development approvals process; and
- Provincial and local planning policy.

Demand Factors

- Historical housing activity based on building permit activity/housing completions;
- Propensity trends by structure type for the City of London;
- Commuting trends and access to surrounding employment markets;
- Market demand for housing intensification;
- Appeal to families, empty-nesters and seniors; and
- Major infrastructure improvements and expansions.

2.4 Employment Forecast

The long-term employment growth potential for the City of London has been developed from the labour force growth forecast discussed in Section 2.1, which considers both the rate and age structure of forecast labour force growth over the 2016 to 2044 planning

horizon. A long-term employment growth forecast by major employment sector/ category (i.e. primary, industrial, commercial, institutional, work at home and no fixed place of work) was then established using the employment "activity rate" method.[1]

When forecasting long-term employment, it is important to understand how growth in the City's major employment categories (i.e. industrial, commercial and institutional) is impacted by forecast labour force and population growth. Population-related employment (i.e. retail, schools, service and commercial) is generally automatically attracted to locations convenient to residents. Typically, as the population grows, the demand for population-related employment also increases to service the needs of the local community. Forecast commercial and institutional activity rates have been based on historical activity rates and employment trends, as well as future commercial and institutional employment prospects within a local and regional context. Similar to population-related employment, home-based employment is also anticipated to generally increase in proportion to population growth.[2]

Industrial and office commercial employment (export-based employment), on the other hand, is not closely linked to population growth and tends to be more influenced by broader market conditions (i.e. economic competitiveness, transportation access, access to labour, and distance to employment markets), as well as local site characteristics, such as servicing capacity, highway access and exposure, site size/configuration, physical conditions and site location within existing and future employment areas throughout the City and surrounding market area. As such, industrial employment (employment lands employment) is not anticipated to increase in direct proportion to population growth and has been based on a review of the following:

- Macro-economic trends influencing employment lands development (i.e. industrial and office employment) with the City of London and surrounding market area);
- Historical employment trends (i.e. review of established and emerging employment clusters), non-residential construction activity and recent employment land absorption rates;
- Availability of serviced employment land supply (i.e. shovel-ready employment land) and future planned greenfield development opportunities on vacant

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[1] An employment activity rate is defined as the number of jobs in a municipality divided by the number of residents.

[2] Due to further advancements in telecommunications technology, it is anticipated that home-based employment activity rates may increase over the forecast period for the City.

designated employment lands within the City of London and surrounding market area;

- Recent land sales of municipally-owned vs. privately-owned industrial lands within the City of London and surrounding market area; and

- Recent trends in industrial land prices and overall cost competitiveness on employment lands.

3. Overview of Macro-Economic Outlook and Regional Employment Trends

The following chapter provides a summary of the macro-economic trends influencing regional labour force and employment trends within the London Census Metropolitan Area (CMA) as well as the City of London over the past two decades. It is noted that historical time periods examined within this chapter vary due to data availability.

3.1 Global Economic Trends

In its latest World Economic Outlook, the International Monetary Fund (I.M.F.) is forecasting global economic growth to strengthen from 3.1% in 2016 to 3.5% in 2017 and 3.8% in 2018. For advanced economies, the I.M.F.'s forecast for 2017 and 2018 has slightly improved from its October 2016 projection with growth of 2.0% in 2017 and 2018. Growth prospects for emerging markets and developing economies are much more varied, but overall have weakened slightly from the I.M.F.'s October 2016 outlook, due to weaker economic conditions in key export markets.[1]

Within the United States (U.S.), real Gross Domestic Product (GDP) grew by a relatively moderate 1.6% in 2016, the weakest increase the past three years. For the remainder of 2017 and all of 2018, U.S. growth is projected to improve to 2.3%, with household spending, business investment and residential construction being key contributors to overall growth. Notwithstanding these predictions for stronger strong U.S. economic growth in the near-term, the lack of specific details on the new U.S. administration's proposed policies has raised the risks associated with the current U.S. outlook. Over the next five years, U.S. economic growth rates, as measured through GDP, are forecast to moderate from 2.3% to 2.1% annually.

3.2 Provincial and National Economic Trends

3.2.1 Ontario Economic Outlook within the Canadian Context

The Ontario economy is facing significant structural changes. Over the past several decades, the Provincial economic base, as measured by GDP output, has shifted from the goods-producing sector (i.e. manufacturing and primary resources) to the service-providing sector. Much of this shift has occurred during the past decade, driven by GDP

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[1] Economic and Fiscal Outlook. Financial Accountability Office of Ontario (F.A.O.). Assessing Ontario's Medium-Term Prospects. Spring 2017.

declines in the manufacturing sector which were most significant immediately following the 2008/2009 global economic downturn. In contrast, service-based sectors, such as financial and business services, have seen significant increases in GDP over the past several years. Growth in the service-based sectors has been driven by strong growth in domestic demand, particularly in consumer spending.

The economic recession hit Ontario relatively hard, with significant declines in manufacturing output particularly in the auto sector and in construction. While the Ontario economy has experienced a rebound in economic activity since the 2008/2009 downturn, this recovery has been relatively slow to materialize. That said, Provincial GDP levels have sharply rebounded since 2014 and are forecast to remain well above the national average in 2017. Stronger Provincial economic growth is attributed, in part, to steady improvement in the economic outlook for the U.S. and an improving export market due, in part, to a lower-valued Canadian dollar.[1]

While the performance of the Ontario economy is anticipated to remain strong over the near-term, there are potential risks to the national and provincial economy which are important to recognize. This includes risks with respect to the proposed renegotiation of the North American Free Trade Agreement (N.A.F.T.A.), the adoption of protectionist trade measures in the U.S., as well as other proposed changes to U.S. fiscal and industrial policies. Domestically, the housing market continues to pose a significant risk to the overall economy. The sharp rise in Ontario housing prices – particularly the Greater Toronto Area (GTA) – has contributed to record consumer debt loads and eroded housing affordability.[2]

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[1] Valued at approximately $0.78 U.S. as of November, 2017.
[2] Economic and Fiscal Outlook. Financial Accountability Office of Ontario (F.A.O.). Assessing Ontario's Medium-Term Prospects. Spring 2017.

Figure 3-1
Annual Real GDP Growth, Ontario and Canada
Historical (2006 to 2015) and Forecast (2016 to 2017)

Source: Derived from BMO Capital Markets Economics, Provincial Economic Outlook, July 22, 2016 by Watson & Associates Economists Ltd. Note: 2017 is a forecast.
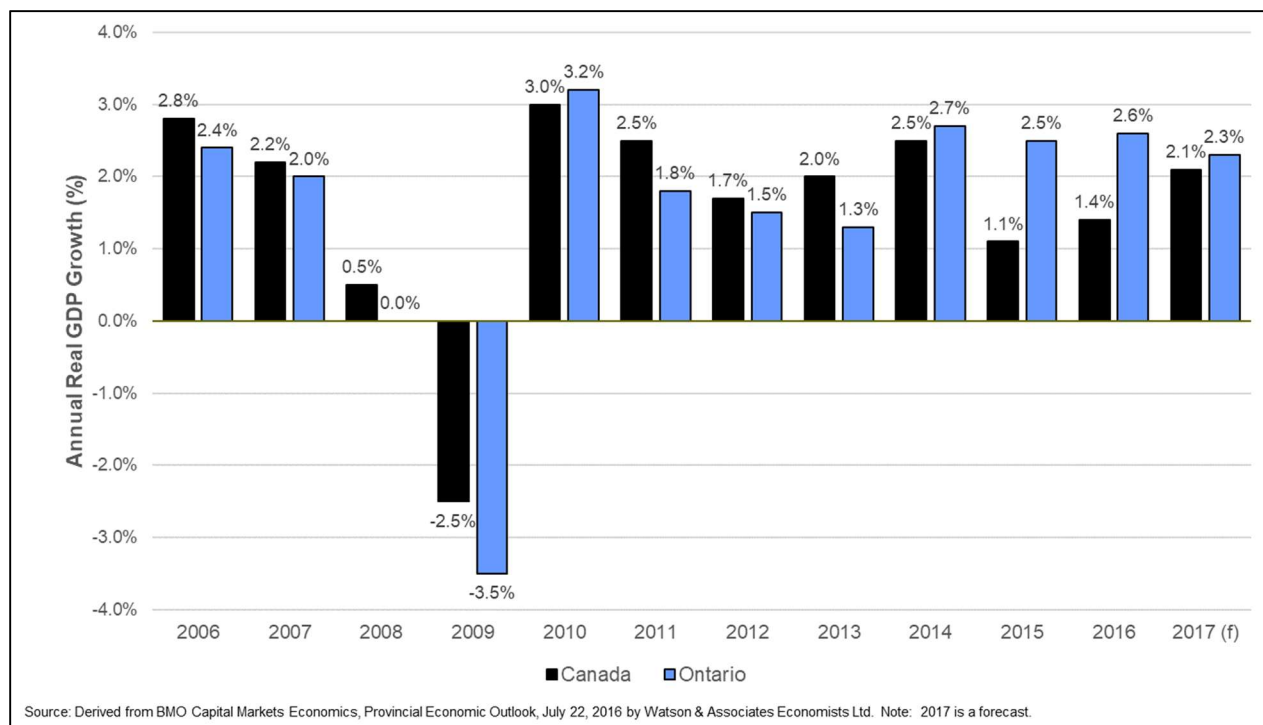
The trend towards more knowledge-intensive and creative forms of economic activity is evident across many sectors within both the broader national and provincial economies and within London's own economy. This trend includes growth in financial services, information technology, business services, health care and social services, government, advanced manufacturing, energy, information and cultural industries, education, training and research, agri-business and tourism. In planning for long-term growth, these sectors are anticipated to be amongst the key growth areas of London's knowledge-based economy.

Recent structural changes in the economy away from traditional goods-producing sectors have also hit the London CMA particularly hard, given London's labour force concentration in traditional manufacturing sectors. This highlights the need to gear economic development initiatives in London towards established and emerging growth sectors of the economy, with a specific emphasis on technology and innovation.

3.2.2 Outlook for Provincial and Regional Manufacturing Sectors

While manufacturing remains vitally important to the Provincial economy with respect to jobs and economic output, this sector is not anticipated to generate significant labour-

force growth across the Province. In general, globalization has led to increased outsourcing of production processes to overseas manufacturers. While there will continue to be a manufacturing focus in Ontario, industrial processes have become more capital/technology intensive and automated. The highly competitive nature of the manufacturing sector will require production to be increasingly cost effective and value-added oriented, which bodes well for firms that are specialized and capital/ technology intensive.

As summarized in Figure 3-2, the manufacturing sector in Ontario experienced significant declines between 2004 and 2009. Between 2009 and 2012, Provincial labour force levels stabilized in the manufacturing sector, followed by a modest decline post-2012. Looking forward, modest labour force growth is anticipated in this sector across the province of Ontario, as well as more regionally across the London CMA.

Figure 3-2
Manufacturing Labour Force Employment in Ontario, 2000 to Early 2017

Source: Statistics Canada, Labour Force Survey, Table 282-0088
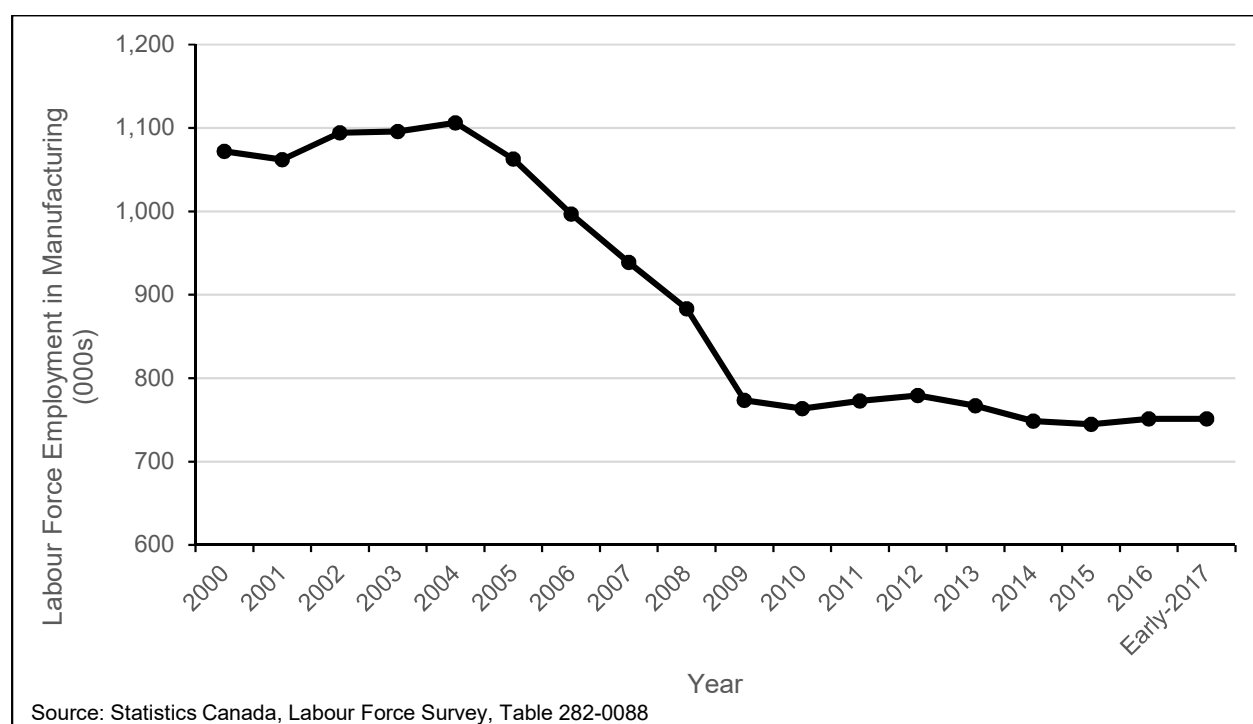
3.3   Regional Economic Trends

3.3.1 Regional Labour Force Trends, London CMA, 2001 to 2016

Figure 3-3 summarizes historical labour force trends within the London CMA over the 2001 to 2016 period. During this period, the London CMA labour force base increased

at a rate of 0.4% per year. During the 2001 to 2006 period, the London CMA experienced a steady increase in total labour force of approximately 2% annually. This was followed by a sharp labour force decline between 2006 and 2011 of approximately -22,000, largely brought on by the 2008/2009 economic downturn. During the 2011 to 2016 period, the London CMA labour force experienced a gradual recovery, increasing by approximately 8,000 or approximately 1% annual growth.

Over the past 15 years, the share of labour force within the London CMA has gradually shifted from industrial and agricultural/primary resource sectors towards commercial and institutional sectors. As of 2016, approximately 74% of the City's labour force base is comprised of commercial and institutional sectors. The industrial and agricultural sectors represent approximately 24% and 1% of the regional labour force base, respectively.

Figure 3-3
London CMA
Labour Force by Major Sector, 2001 to 2016

Note: Wholesale and Retail Trade is grouped into Commercial
Source: Derived from Statistics Canada. Table 282-0131 by Watson & Associates Economists. Ltd.
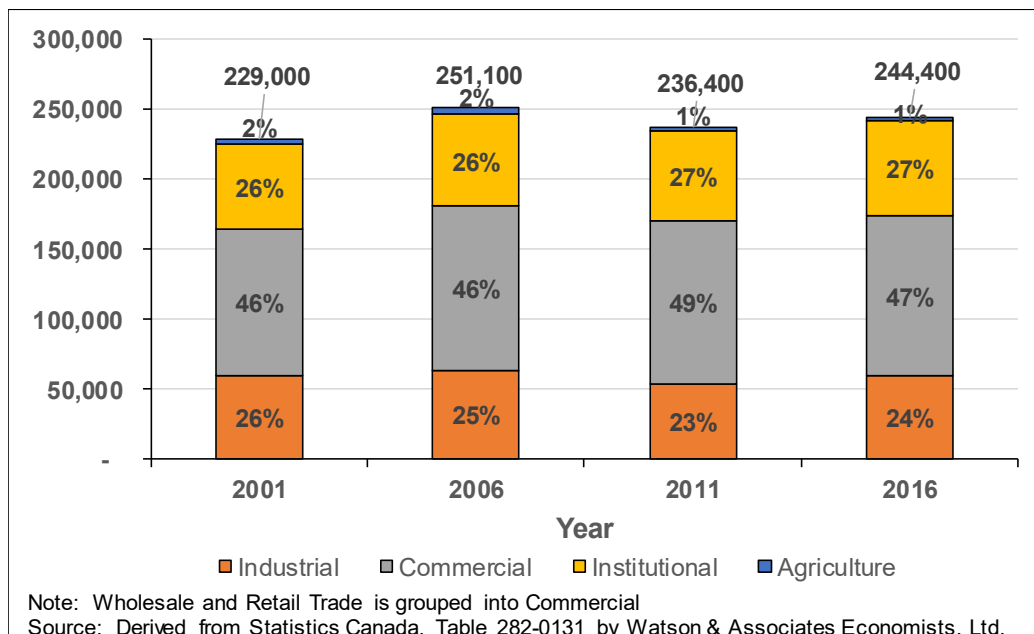
Figure 3-4 summarizes recent labour force trends for the London CMA by sub-sector over the past 10 years. During the 2006 to 2011 period, the London CMA experienced significant labour force declines in the manufacturing and agriculture sectors. These declines were partially offset by strong growth in construction, business services, health care, transportation and warehousing, as well as accommodation and food.

During the 2011 to 2016 period, the London CMA experienced a moderate recovery in the manufacturing sector, adding approximately 4,000 people to the labour force base in this sector. The region has also experienced continued labour force growth in recent years related to health care and accommodation and food. On the other hand, the retail and wholesale trade sectors continue to experience moderate labour force declines. Within the past five years, the rate of labour force decline in the finance, insurance and real estate sector has also accelerated.

Figure 3-4a
City of London in Relation to London CMA
Change in Labour Force Growth, 2006 to 2011

Source: Derived from Statistics Canada CANSIM Table 282-0131 by Watson & Associates Economists Ltd.
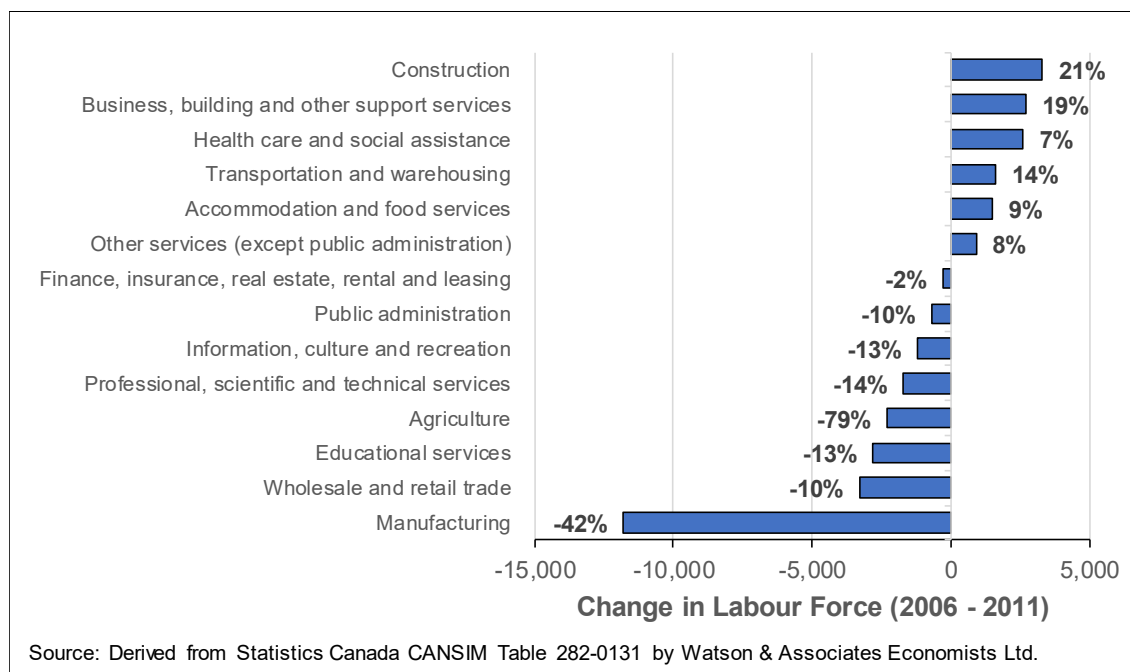
Figure 3-4b
City of London in Relation to London CMA
Change in Labour Force Growth, 2011 to 2016

Accommodation and food services	22%
Manufacturing	13%
Health care and social assistance	8%
Professional, scientific and technical services	15%
Agriculture	39%
Transportation and warehousing	11%
Information, culture and recreation	8%
Business, building and other support services	4%
Educational services	1%
Construction	-1%
Public administration	-5%
Wholesale and retail trade	-6%
Finance, insurance, real estate, rental and...	-23%
Other services (except public administration)	-44%

Change in Labour Force (2011-2016)

Source: Derived from Statistics Canada CANSIM Table 282-0131 by Watson & Associates Economists Ltd.

3.4 Middlesex County Historical Demographic Trends

This section provides an overview of historical net migration trends for Middlesex County[1] over the past 20 years.

3.4.1 Middlesex County Historical Net Migration Trends by Type

Figure 3-5 illustrates historical net migration trends over the past 20 years. Between 1996 and 2016, approximately 95% of net migration within Middlesex County occurred within the City of London. From 1996 to 2001, the City of London experienced relatively lower level of net migration, accounting for 57% of Middlesex's total net migration. In the following period, from 2001 to 2006, the City of London experienced higher levels of net migration than the entire County. Between 2006 to 2011, London's share of total net migration was 94%, and more recently falling to 89% from 2011 to 2016.

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[1] For the purpose of this analysis, Middlesex County includes the City of London.

Figure 3-5
Middlesex County & City of London
Historical Net Migration Trends

Source: Middlesex County net migration derived from Statistics Canada CANSIM Tables 051-0052, 051-0053, 051-0062, and 051-0063. City of London derived by Watson & Associates Economists Ltd. based on Statistics Canada Demography Division.
[1] It is noted that the reported number of deaths for the City of London by Vital Statistics between 2001 and 2006 is realatively high in comparison to other census periods. This may have an impact on total net migration levels during this period.

Figure 3-6 summarizes net migration trends in Middlesex County by type over the 20-year period. International migration represents the largest component of net migration, ranging from 131% from 1996 to 2001 to 71% from 2011 to 2016. However, it is noted that the City's share of international migration has been consistently falling over the past two decades. Similarly, interprovincial migration (represents movement between provinces or territories involving a change in the usual place of residence) has steadily declined, over the past 20 years. In contrast, the share of intraprovincial migration within the City of London (represents movement between census subdivisions, but residents remain in the same province or territory) has consistently grown over the past 15 years between 1996 to 2001.

Figure 3-6
Middlesex County
Historical Net Migration Trends
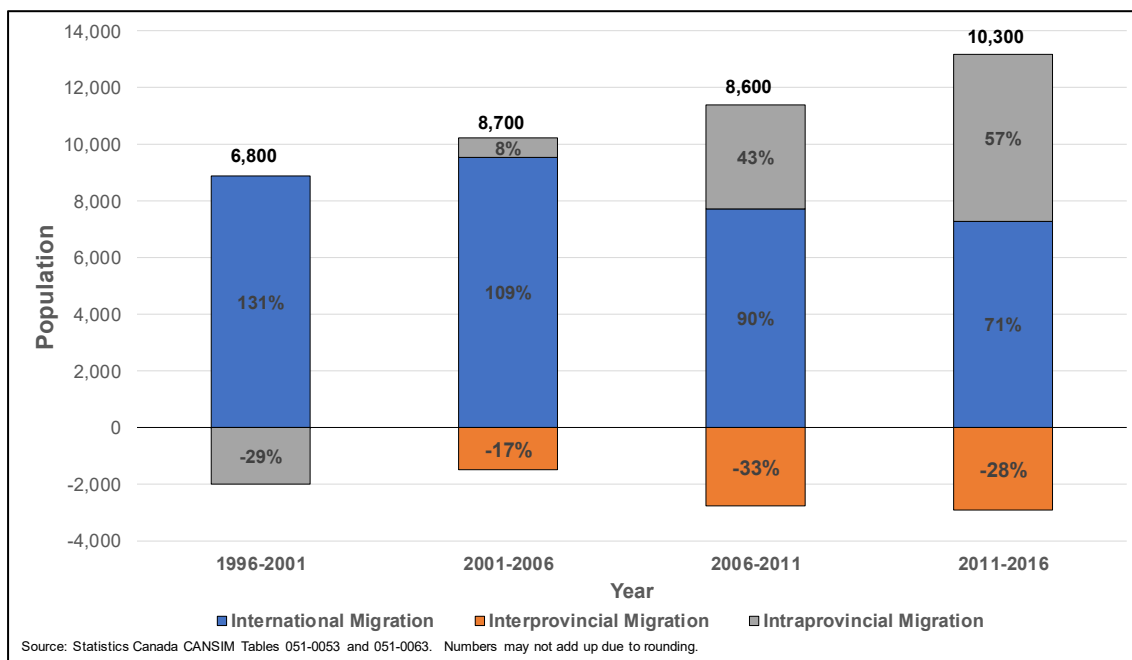
3.4.2 Middlesex County Historical Net Migration Trends by Age

Figure 3-7 summarizes historical net migration by age for both Middlesex County and City of London over the past 10 years. For Middlesex County[1], the 0-19 age group represents the largest cohort with 52% of overall net migration between 2006 and 2016. This is followed by the 20-34 and 35-44 age groups which collectively comprised 40% of overall net migration within Middlesex County. Remaining adults and seniors (44+ age group), represented 8% of total net migration within Middlesex County. In general, the City of London shows a similar pattern relatively to the County as a whole, however, the share of net migration by age is more weighted heavily towards adults and seniors.

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[1] For the purpose of this analysis, Middlesex County includes the City of London.

Figure 3-7
Middlesex County[1] & City of London
Historical Net Migration Trends by Age Cohort (2006 to 2016)

Source: Statistics Canada CANSIM Tables 051-0052, 051-0053, 051-0062, and 051-0063

Source: City of London total net migration derived by Watson & Associates Economists Ltd.
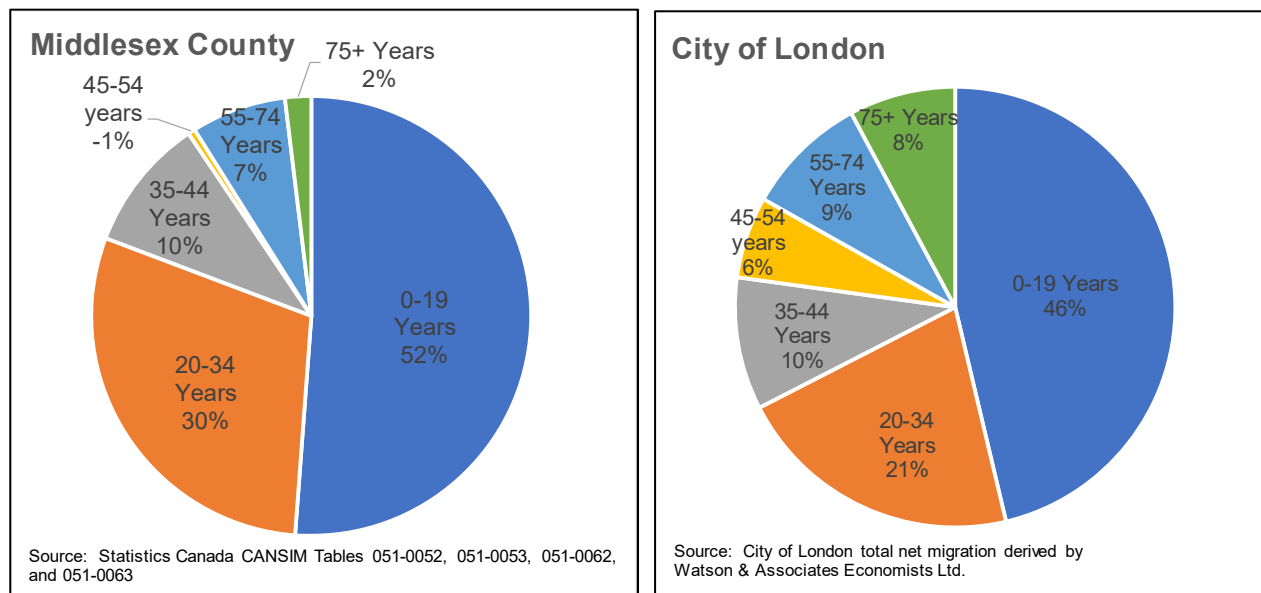
3.5 City of London Economic and Non-Residential Development Trends

3.5.1 City of London, Labour Force by Place of Work, 2001 to 2016

Figure 3-8 summarizes the historical change in total and employed labour force for the City of London over the 2001 through 2016 period. Labour force data represents the number of London residents who live in the City London and are within the labour force, regardless of where they work. This includes residents who live and work within the City of London, including those who work from home, and those who commute outside of the City for work. The following observations are identified:

- As of 2016, the City of London total labour force is estimated at approximately 212,000, which represents approximately 86% of the total London CMA labour force base;
- Between 2001 and 2016, the City's share of the London CMA labour force base has increased from 77% to 86%, which indicates that the London economy is growing at a faster rate than the surrounding municipalities, when comparing the remainder of the London CMA;

[1] For the purpose of this analysis, Middlesex County includes the City of London.

- Over the 2001 to 2016 period, the City's labour force base has increased at an annual rate of 1.2%;
- Similar to the London CMA, the City of London labour force base declined during the 2006 to 2011 period; however, since 2011, the City has experienced a steady labour force recovery; and
- The unemployment rate within the City of London was estimated at approximately 6.8% in 2016. Comparatively, the Ontario unemployment rate is currently estimated at 6.6% as of 2017.

Figure 3-8
City of London
Labour Force Trends, 2001 to 2016

Year	Total Labour Force	Employed Labour Force	Employment Rate (%)	Participation Rate (%)
2001	177,800	165,200	7.1%	63%
2006	194,400	179,100	7.9%	65%
2011	196,400	178,700	9.0%	62%
2016	211,800	197,000	7.0%	64%

Source: Derived from Statistics Canada Labour Force Data, Place of Work. Employment data by Watson & Associates Economists Ltd. 2001-2011. 2016 is an estimate by Watson & Associates Economists Ltd.

Figure 3-9 summarizes historical trends in the City of London labour force base by place of work. As illustrated below, the London labour force base is highly concentrated within the City. As of 2016, it is estimated that approximately 80% of the City's labour force base live and work within the City or work from home within the City of London. Over the past 20 years, however, the share of live/work labour force has gradually declined from 77% to 75%, due to an increase in the percentage of labour force with no fixed place of work (NFPOW).

Figure 3-9
City of London
Employed Labour by Place of Work, 2001 to 2016

Source: Derived from Statistics Canada Labour Force Data, Place of Work.
Employment data by Watson & Associates Economists Ltd. 2001 – 2011. 2016 is an estimate by Watson & Associates Economists Ltd.
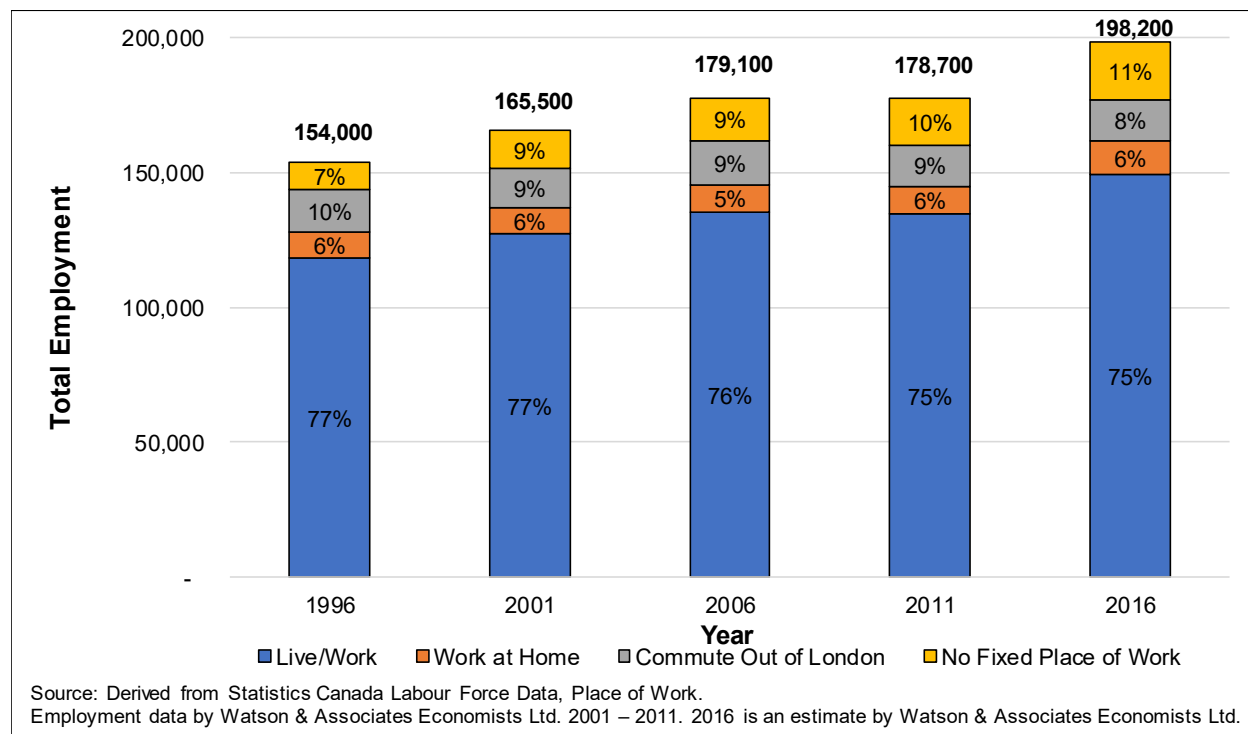
3.4.2 City of London Employment Trends by Place of Work

Figure 3-10 summarizes the historical change in the City of London employment base by usual place of work during the 2001 to 2016 period. Employment represents the number of jobs located within London. This includes the live/work labour force, including work at home employees, as well as in-commuters. Figure 3-11 provides a summary of employment trends within the City by major sector over the same period. Key observations include:

- The City of London serves as an employment centre to the surrounding communities within the London CMA and beyond. With an estimated total employment base of 212,000 in 2016, the City's job base is approximately 15,100 higher (approximately 8%) than its employed labour force base;

- Of the City's 2016 employment base, approximately 90% of employees are reported as having a usual place of work. The remaining 10% work from home or are reported as having no fixed place of work. Over the past 15 years, the share of London's employment base with no usual place of work has steadily increased from 23,900 to 33,600. Within the City of London, the number of work

at home and no fixed place of work employees has increased at a faster rate than employees with a usual place of work; and

- Similar to the Province, the structure of the City of London economy has steadily shifted away from traditional good-producing sectors to the retail sector and knowledge-based economy. As summarized in Figure 3-11, the service sector currently comprises approximately 60% of the City's employment base, up from 55% in 2001.

Figure 3-10
City of London
Employment by Place of Work, 2001 to 2016

	City of London Historical Employment					Relationship of Employment to Employed Labour Force	
Year	Employed Labour Force	Employment (Usual Place of Work)	Work from Home	No Fixed Place Of Work (NFPOW)	Total Employment (Including NFPOW and Work at Home)	Difference (Employed Labour Force less Total Employment)	Employment as % of Labour Force
2001	165,200	165,200	9,700	14,200	179,300	14,100	109%
2006	179,100	177,600	9,800	15,900	193,500	14,400	108%
2011	178,700	178,700	10,500	17,200	195,900	17,200	110%
2016	197,000	192,100	12,400	21,200	212,000	15,000	108%

Source: Derived from Statistics Canada Labour Force Data, Place of Work. 2016 data is estimated by Watson & Associates Economists Ltd. Note: 2011 Labour Force Survey has a sample size of 30% and 2016 Labour Force Survey has a sample size of 25%.

Figure 3-11
City of London Employment Trends by Major Sector, 2001 to 2016

2001

Goods Producing 21%

Retail/Accommodation & Food 24%

Remaining Service/Knowledge-based Sectors 55%

Source: 2011 data derived from Statistics Canada census. 2016 data is an estimate by Watson & Associates Economists Ltd.

2016

Goods Producing 17%

Retail/Accommodation & Food 23%

Remaining Service/Knowledge-based Sectors 60%

Source: 2011 data derived from Statistics Canada census. 2016 data is an estimate by Watson & Associates Economists Ltd.

3.4.3 City of London Commuting Trends

Figure 3-12 summarizes historical commuting patterns within the City of London between 1996 and 2011. As illustrated, approximately 82% of City of London out-commuters work within the "primary commuter-shed" located within the upper-tier/single-tier municipalities within the surrounding area. At 15%, the western portion of the Greater Golden Horseshoe (GGH) and Greater Toronto Hamilton Area (GTHA) comprise a relatively small component of the City's share of total out-commuters. It is important, however, to note that these municipalities represent a growing share of London's out-commuters, up from 11% in 1996. Given the relatively higher forecast employment growth rates of the GGH municipalities relative to London's primary commuter-shed, it is anticipated that the City's share of out-commuters will continue to gradually shift towards the GGH.

As of 2011, the employment base within the City of London's primary and secondary commuter-shed was approximately 2.9 million.[1] In 2011, City of London commuters comprised approximately 0.5% of this employment base, representing approximately 15,300 jobs. The employment base within the City of London commuter-shed (excluding the City of London) is forecast to increase from approximately 2.9 million in 2011 to 4.2 million in 2044. Assuming that the proportion of City of London commuters remains relatively stable at 0.5%, this represents a potential labour force increase of approximately 7,700 for the City of London by 2044.

Figure 3-12
City of London
Commuting Trends, 1996 to 2011
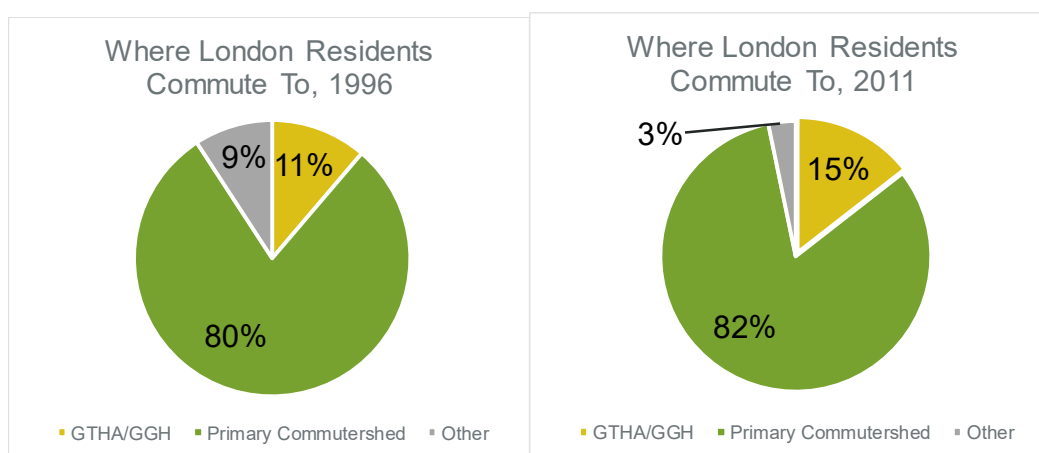
Source: Statistics Canada Census data, 2001 and 2011.

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[1] Watson & Associates Economists Ltd. estimate, 2017.

Figure 3-13
Map of London Commuter Shed
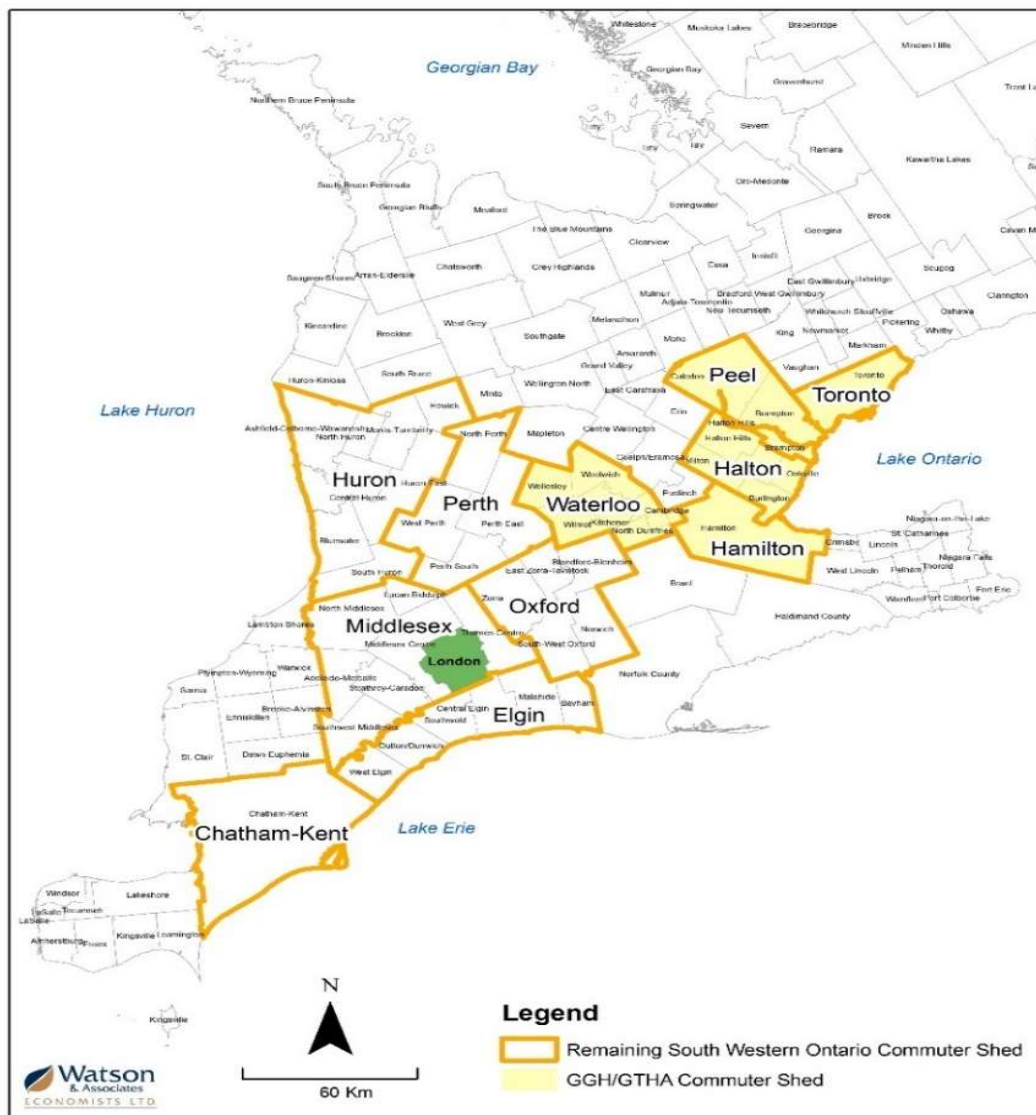
3.4.4 City of London Employment Trends by Sub-Sector, 2006 to 2016

Figures 3-14a and 3-14b graphically summarize the City of London's employment concentrations and historical growth rates relative to Ontario, based on a Location Quotient (LQ) analysis. This analysis has been summarized by goods producing sectors and service-providing sectors. LQs are a commonly used tool in regional

economic analysis to identify and assess the relative strength of industry clusters.[1] They assess the concentration of economic activities within a smaller area relative to the overarching region in which it resides. The LQ for a given municipality or local geographic area is calculated by dividing the percentage of total local employment by sector, by the percentage of total broader employment base by sector. An LQ of 100% identifies that the concentration of employment by sector is consistent with the broader employment base average. An LQ greater than 100% identifies that the concentration of employment in a given employment sector is higher than the broader base average, which suggests a relatively high concentration of a particular employment sector. Employment sectors with a relatively high LQ generally serve both the local population base, as well as employment markets which extend beyond the boundaries of the municipality. Alternatively, employment sectors with an LQ of less than 100% identify employment sectors which have a relatively lower concentration of employment and are generally under-servicing the needs of the local economy.

The results of this analysis indicate the following:

- The City of London has a high concentration of employment sectors relating to local/regional-population-serving sectors, including health care and social services, accommodation and food services and professional, scientific and technical services;
- London also has a highly concentrated and rapidly growing transportation and warehousing sector;
- Similar to the Province, the manufacturing sector has experience negative employment growth over the past decade, but is now beginning to show signs of a gradual recovery;
- Employment sectors geared towards the office market typically have a relatively high employment concentration within the City of London relative to the Province. These sectors have also experienced moderate to strong employment growth over the past 10 years. This includes several knowledge-based sectors, such as information, culture, professional, scientific and technical services, finance and insurance public administration, and health care and social assistance.

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[1] An employment cluster is defined as a set of inter-linked, private-sector industries and public-sector institutions, whose final production reaches markets outside the region. Thus, the cluster approach to economic development reflects, in some way, a more traditional focus on the export base of a region.

Figure 3-14a
City of London Relative to Ontario
Goods-Producing Industries' Cluster Size and Growth Matrix

Source: Watson & Associates Economists Ltd.
Data source: Location quotients based on comparison to Ontario derived from EMSI Data
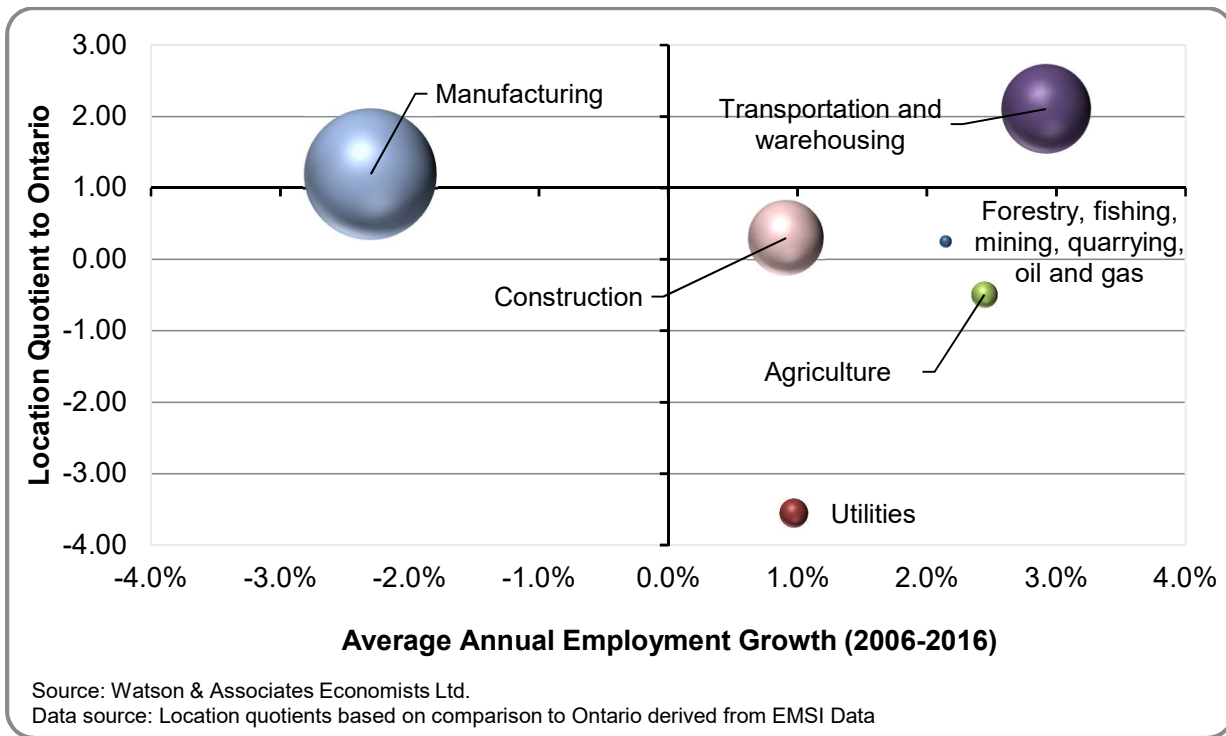
Figure 3-14b
City of London Relative to Ontario
Service Producing Industries Cluster Size and Growth Matrix

Source: Watson & Associates Economists Ltd.
Data source: Location quotients based on comparison to Ontario derived from EMSI Data
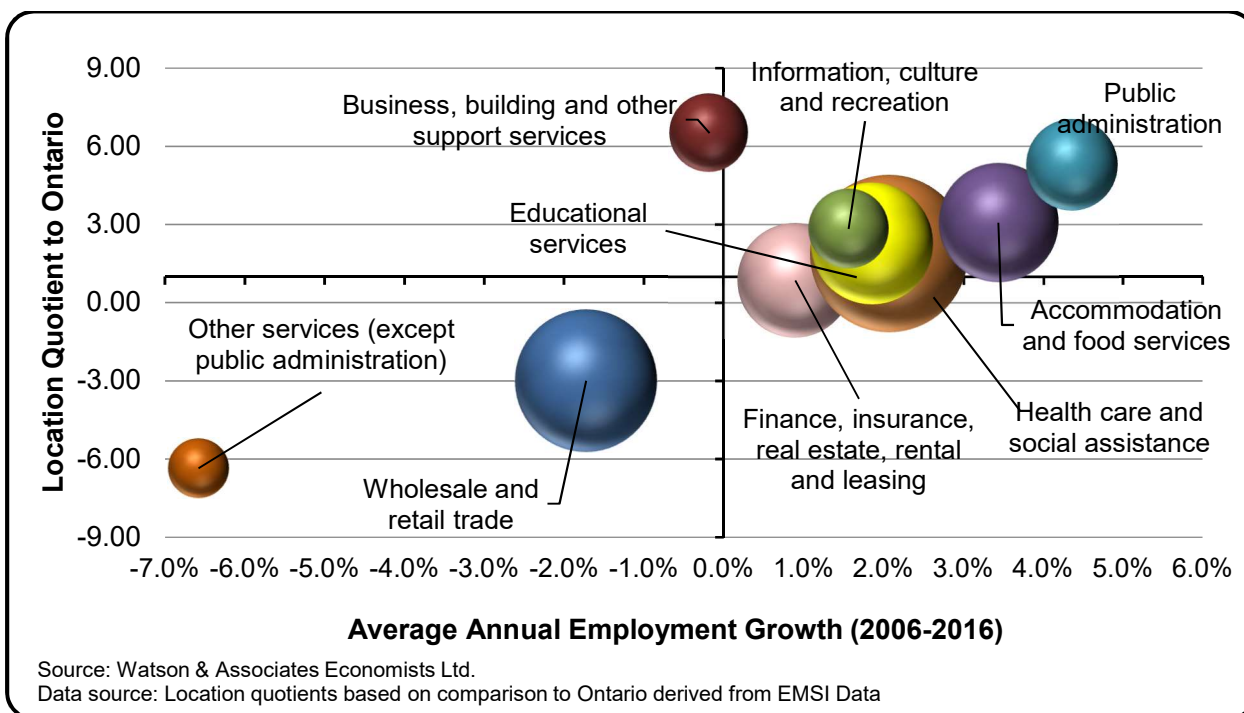
3.4.5 Non-residential Building Permit Activity by Major Sector, 2006 to 2015

Figure 3-15 summarizes non-residential building construction by industrial, commercial and institutional sector (ICI) for the City of London during the 2006 to 2015 period, expressed in gross floor area (GFA) in square feet (sq.ft.). As shown, the City of London has averaged 1,318,500 sq.ft. of non-residential building activity over the 2006 to 2015 period. Non-residential construction activity has moderated over the past 4 years at a level below the 10-year historic average. Construction of industrial buildings accounted for 31% of recent non-residential activity, while construction activity related to commercial (primarily retail) and institutional development accounted for 33%% and 36%, respectively.

Figure 3-15
City of London
Non-residential Building Permit Activity by ICI., 2006 to 2015

Source: Derived from City of London Building Permit by Watson & Associates Economists Ltd, 2017
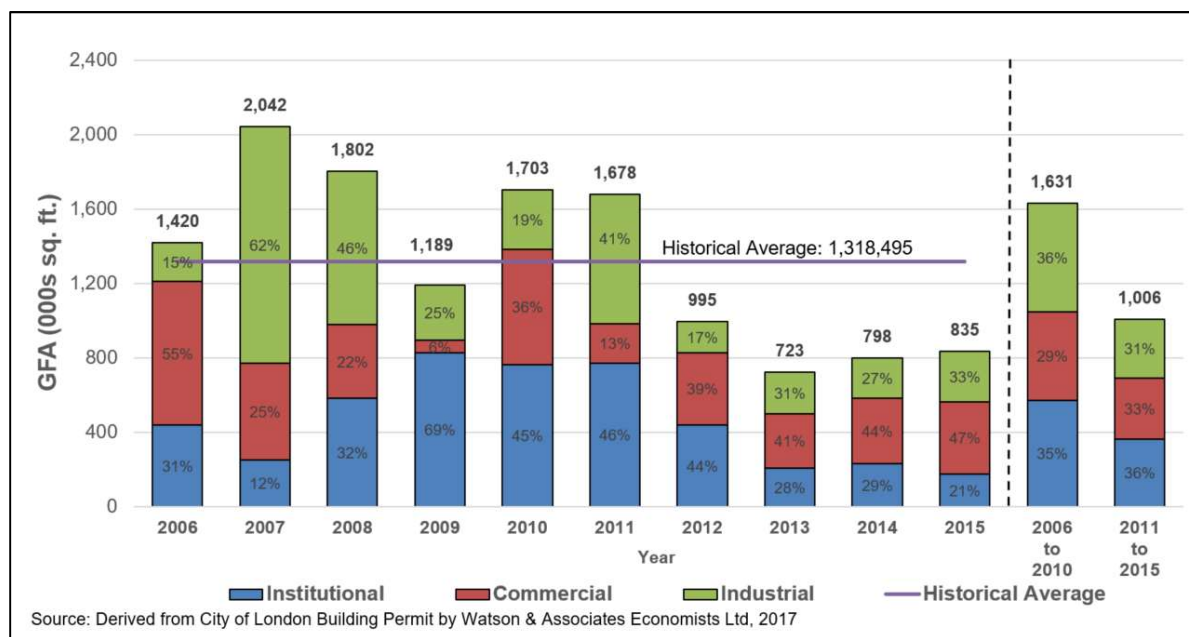
3.5 Overview of Key Regional Economic Growth Drivers within the City of London

3.5.1 Building on the City's Diverse Employment Base

Situated between Toronto and Detroit, the City of London serves as a regional economic hub across a broad range of goods-producing and service-providing sectors. City of London has a strong concentration of employment sectors in manufacturing, health care and social services, education, and finance and insurance. Combined, these sectors create a strong and diverse employment base for the City.

Continued employment growth in both traditional and knowledge-based sectors has been identified as a major driver of economic growth within the City of London Community Road Map.[1] This report looks at various ways in which the City of London can harness its local opportunities, including talent attraction and retention, innovation and technology commercialization, and the impact of public sector institutions. Post-secondary institutions, hospitals, and research institutions represent London's largest single employers and provide a stabilizing effect on the local economy. Collectively, the London Health Science Centre and St. Joseph's Health Care London, employ over 15,000 people. Similarly, Western University and Fanshawe College are responsible for over 20,000 local jobs. These institutions inject billions of dollars into the London economy while spearheading and supporting local and regional innovation.

3.5.2 Regional Infrastructure Improvements

The City of London's Transportation Master Plan (T.M.P.) outlines plans for a Bus Rapid Transit (B.R.T.) network running both north and south through the Richmond and Wellington areas and another line that runs east-west through Oxford and Dundas.[2] The implementation of the City of London rapid transit initiative (Shift) is anticipated to result in a significant improvement in London's public transit system. The proposed B.R.T. project will help shape the future development patterns within the City, encourage intensification and regeneration, and stimulate economic growth over the next several decades.[3]

In addition to a B.R.T., the Province of Ontario announced earlier this year that they are moving forward with plans for a high-speed rail from Toronto to Windsor. This project would utilize existing tracks that are already in place such as the VIA rail line as well as new rail lines dedicated for the high-speed rail.[4] One of the major stops would include the City of London. This high-speed rail would be conducted in two phases. The first phase would construct a new two-track corridor connecting from Kitchener to London

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[1] London's Community Economic Roadmap, Inspire, Innovative, Implement and Economic Strategy 2015-2020. November 2015.

[2] City of London 2030 Transportation Master Plan: SmartMoves. A New Mobility Transportation Master Plan for London. Final Report: Volume 2. Prepared by AECOM. May, 2013.

[3] Rapid Transit Alternative Corridor Review. Chair and Members Strategic Priorities and Policy Committee Meeting, May 3, 2017.

[4] High Speed Rail in Ontario: Transforming mobility, connecting communities, integrating centres of innovation and fostering regional economic growth and development. Special Advisor for High Speed Rail: Final Report. December 2016.

adjacent to the existing hydro corridor. The second and final phase would connect London to Windsor.

According to the Province, a new multimodal station would be constructed in the downtown London area adjacent to the existing VIA rail station. By Spring 2018, the Province will be establishing a high-speed rail planning advisory board, and environmental assessments will follow shortly thereafter. According to the Province, the high-speed rail between Toronto and London could be completed as early as 2025. Further developments on this key regional infrastructure will be closely monitored by the City of London.

3.5.3 Cost of Industrial Development

A significant factor influencing business decisions on where to locate is the cost competitiveness (both capital investment and operating costs) of industrial development in relation to market demand and potential return on investment. In addition to the regional locational attributes, there are several financial factors which also influence the market demand and the general competitiveness of non-residential development within the City of London, such as industrial land prices, industrial development charge subsidies, tax rates, water/sewer rates and construction costs. Collectively, these financial factors impact the overall cost of industrial development and the competitive position of the City of London. The City of London represents a cost competitive location for industrial and commercial development, most notably when compared to municipalities within the western portion of the GGH. This competitive advantage has been and will continue to be, a key driver of the City's attractiveness in accommodating future export-based industries on its employment lands.

3.5.4 Quality of Life

Quality of life is a factor influencing the residential location decisions of individuals and their families. It is also a factor considered by companies in relocation decisions. Typically, quality of life encompasses several sub-factors such as employment opportunities, cost of living, housing affordability, crime levels, quality of schools, transportation, recreational opportunities, climate, arts and culture, entertainment, amenities and population diversity. The importance of such factors, however, will vary considerably depending on life stage and individual preferences.

The City of London has a reputation for being a vibrant, growing, affordable, low-crime location in which to live in Ontario, with access to a wide range of recreational opportunities within the City and surrounding countryside. Furthermore, given the City's

strategic location between major markets such as Toronto, Kitchener-Waterloo and Detroit, and its proximity to two major 400-series highways, London is well position to develop and expand its economic base.

3.6   Observations

The City of London has recently experienced moderate employment growth within its industrial sector, led by the transportation and warehousing sector and assisted by the manufacturing sector. Continued local industrial employment opportunities are anticipated in advanced manufacturing, and the transportation and warehousing sector, driven by the City's competitive development environment as well as rail and highway connections between southern Ontario and the U.S. border.

While recent industrial employment rates in the City of London have improved, it is important to note that the absolute employment growth has been strongest in London's commercial sector. Similar to the broader regional and provincial economy, local employment growth prospects within the City of London are anticipated to be strongest in the knowledge-based industry. A number of emerging sectors exist within the City have shown strong employment growth over the past decade and support the continued growth of the City's creative-class economy.

4. Historical Demographic and Housing Trends within the City of London and Surrounding Market Area

The following Chapter explores historical demographic and housing trends within the within the City of London and surrounding market area based on recent Statistics Canada data and other available information sources. It is noted that the historical time period investigated varies throughout this Chapter, subject to data availability.

4.1 Review of Recent Demographic Trends, City of London

4.1.1 Historical Population Trends, 1991 to 2016

Figure 4-1 summarizes historical population growth rates for the City of London during the 1991 to 2016 period in accordance with Statistics Canada Census data. For comparative purposes, historical population growth rates have also been provided for Middlesex County and the province of Ontario. Key observations include the following:

- Over the past 25 years, the population base within the City of London has increased by 72,200 persons, or approximately 0.8% per year;
- Comparatively, the population base for the province of Ontario as a whole, grew at a slightly faster rate (1.2% annually) during the same time period; however, during the past five years, the annual rate of population growth within the City of London has slightly outpaced the province; and
- Historically, the population growth within Middlesex County has also increased at slightly faster rate than the City of London, however, during the most recent 2016 Census period, the population within Middlesex County declined by approximately 1,300 persons or -0.4% annually.

Figure 4-1
City of London
Historical Population Growth Rates, 1991 to 2016

Source: Derived from Statistics Canada Census Data, 1991-2016 by Watson & Associates Economists Ltd.
Note: City of London is not included in the numbers for Middlesex County
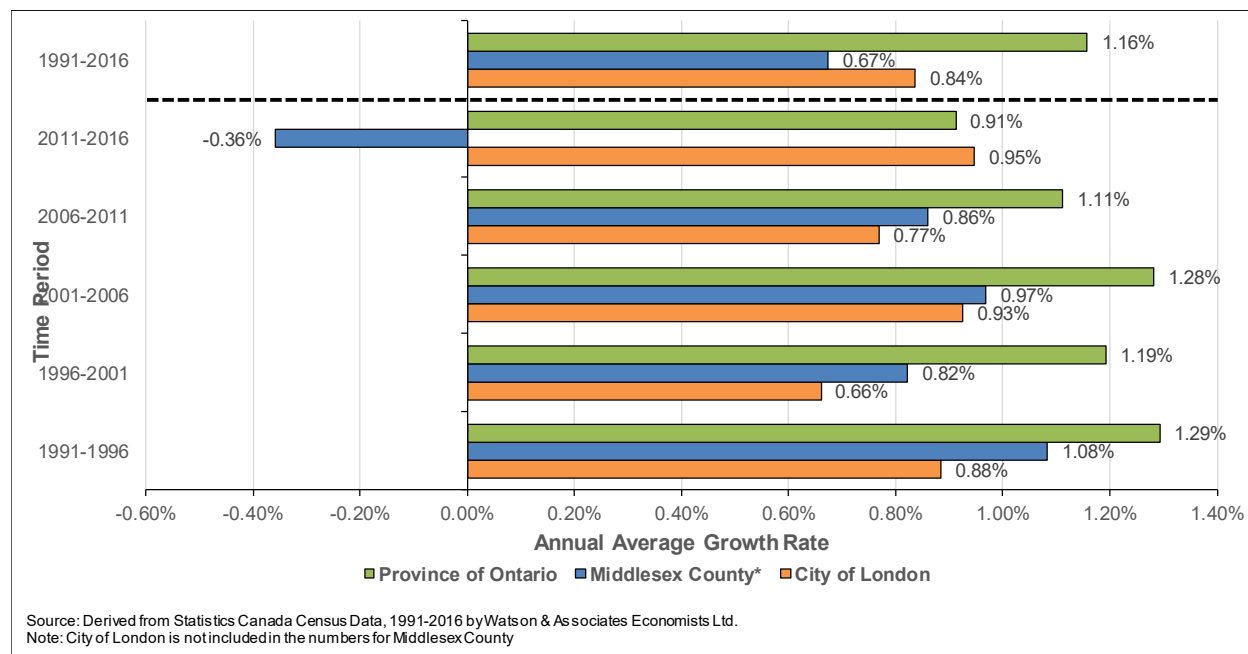
4.1.2 City of London Components of Population Growth, 1991 to 2016

There are two primary components of population growth; natural increase (i.e. births less deaths) and net migration. Figure 4-2 summarizes historical trends regarding natural increase and net migration for London. Key observations include the following:

- During the 1991 to 2016 period, net migration as a percentage of population growth rapidly increased from 12% to 75%;
- During the 2001 to 2016 period, the share of population growth attributed to natural increase has gradually declined as a result of declining fertility rates and the aging of the City's Baby boomer population (i.e. persons born between 1946 and 1964);
- Between 2001 and 2016, net migration has represented a key driver of population growth. During this period, net migration averaged approximately 2,400 persons per year;
- Over the past 15 years (2001 to 2016) net migration within the City of London has been primarily driven the youth (0-19) and the young adult (20-34) age group. This trend is anticipated to continue over the forecast period; and
- Similar to Provincial trends, net migration within the City of London is forecast to represent an increasing component of forecast population growth.

Figure 4-2
City of London
Component of Population Growth, 1991 to 2016

Source: Watson & Associates derived from Statistics Canada data. 2011-2016 estimated by Watson & Associates Economists Ltd., includes Census undercount of approximately 2.73%.
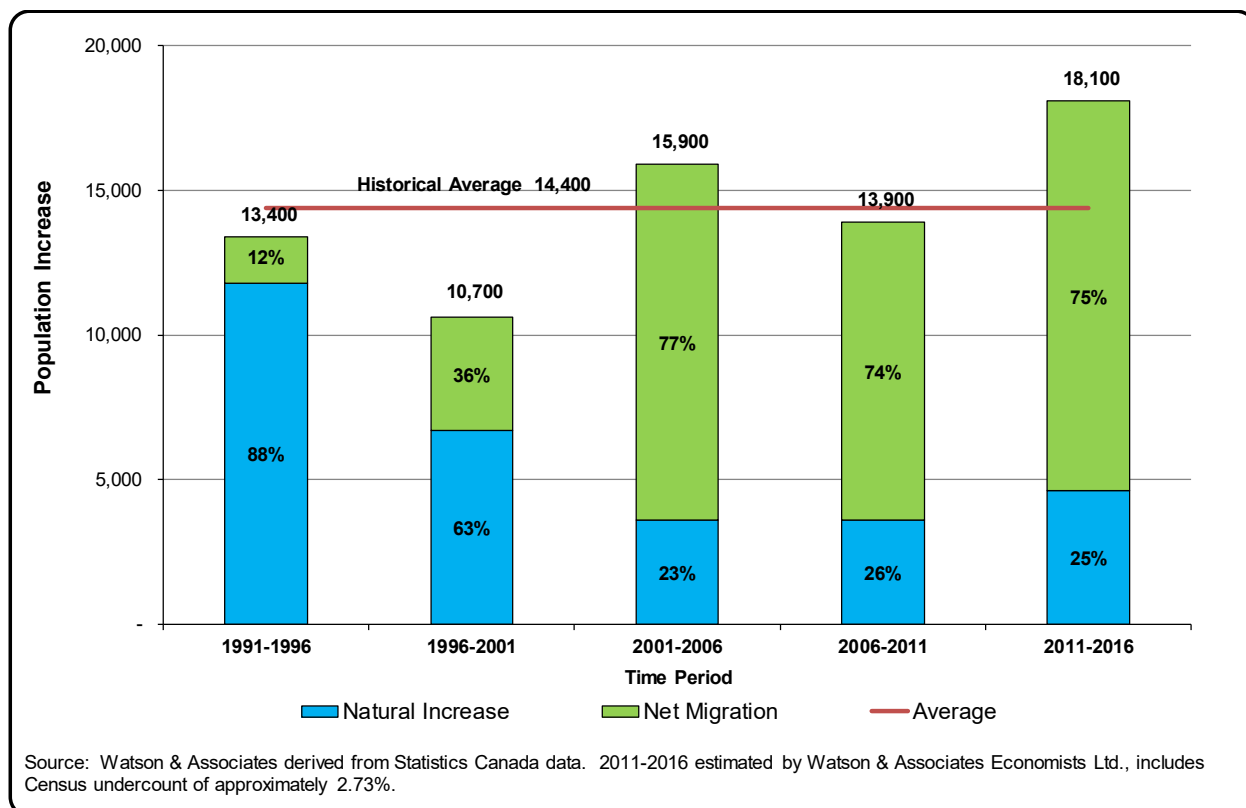
Figure 4-3 summarizes historical trends in population structure by age cohort over the 1991 to 2016 period by major age group. Figure 4-4 summarizes the 2016 population age structure in the City of London compared to Middlesex County and the Province. Key observations regarding the City of London population forecast by age include the following:

- In 2016, the 0-19 age cohort (youth population) in London accounted for 22% of the total population. Proportionately, the population share of this age cohort has decreased from 26% in 1991;
- Similarly, London's young adult/adult population (20-54 years of age) has declined moderately over the same time period, comprising approximately 49% of the population in 2016:
    - The 20-34 age cohort (young adults), which comprised an estimated 24% of the population in 2016, has decreased from 29% in 1991;
    - The 35-44 age group decreased from 15% in 1991 to 13% in 2016; and
    - Adults 45-54 years old account for 15% of the 2016 population, up from 10% in 1991;

- The 55-74 age group (empty-nesters/younger seniors) increased by 5 percentage points between 1991 and 2011, from 15% to 20%, with much of the increase occurring between 2006 and 2011;

- The 75+ age group (older seniors) has increased from 5% in 1991 to 7% in 2016; and

- Comparably, the City of London has a proportionally higher share of young adults (20 to 34) relative to the Province, which is offset by a slightly lower share of population in the 34 to 54 age groups.

Figure 4-3
City of London
Population by Age Cohort, 1991 to 2016

Source: Dervied from Statistics Canada 1991-2011 Census by Watson & Associates Economists Ltd.
Includes an undercount of approximately 2.73%
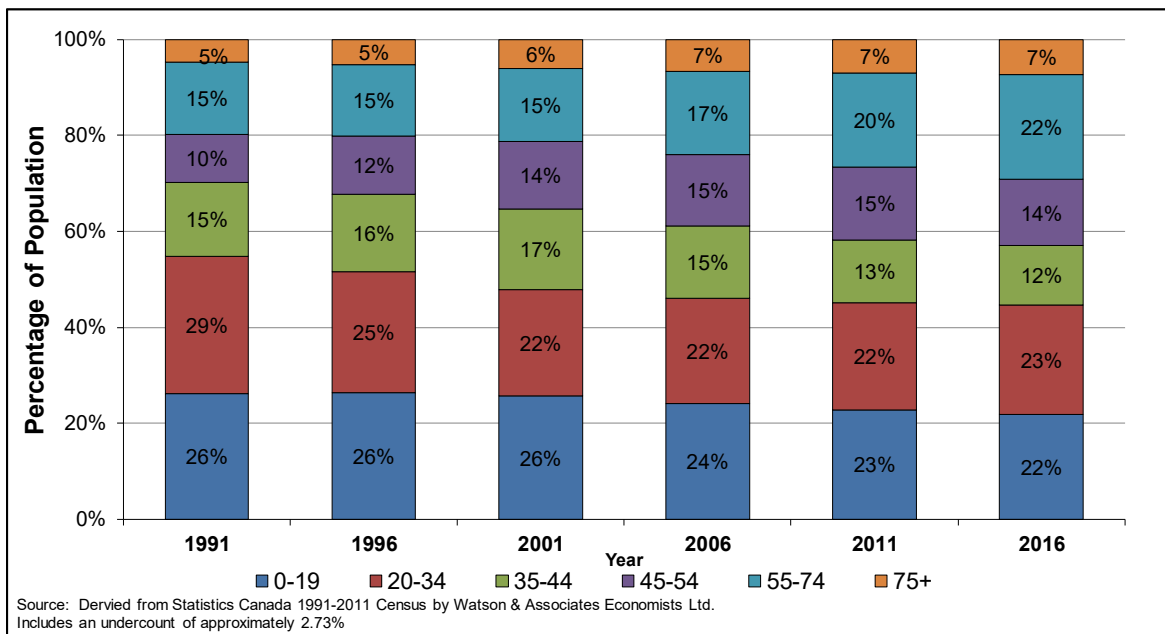
Figure 4-4
City of London
Population Age Structure Relative to Middlesex County and the Province of Ontario, 2016

Source: Statistics Canada Census, 2016.
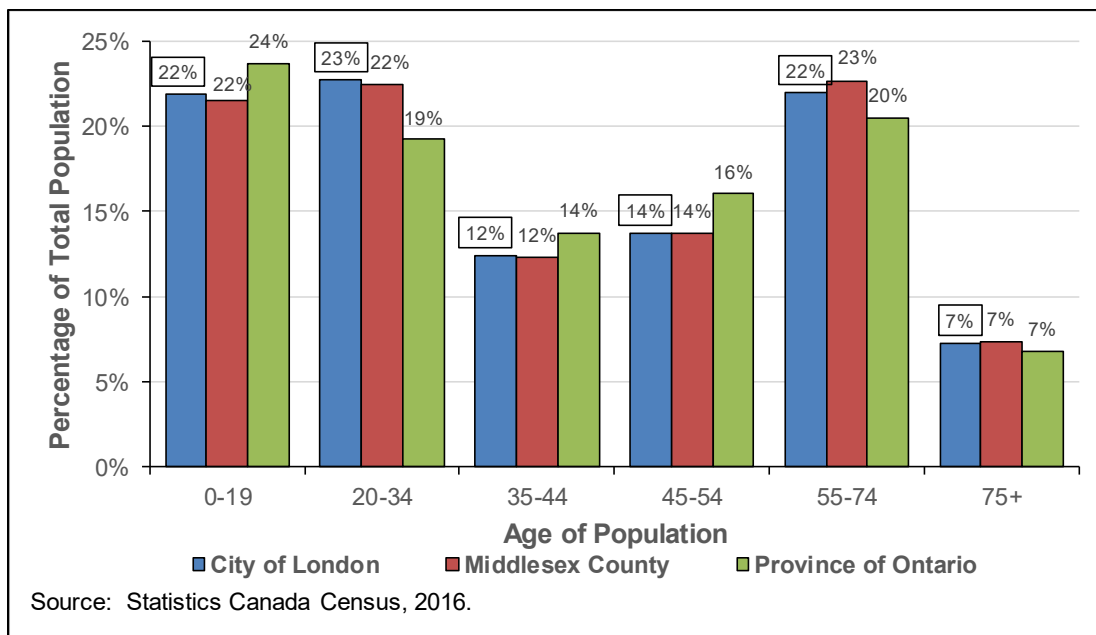
Demographic trends strongly influence both housing need and form. Across the City of London, the population is getting older on average, due to the aging of the Baby Boomers. The first wave of this demographic group turned 70 years of age in 2016. Between 2016 and 2044, the 75+ age cohort will increase from 7.3% to 14.3% within the City of London. This represents an increase of 43,400 people over this time period.

Not only is the Baby Boom age group large in population, but it is also diverse with respect to age, income, health, mobility, and lifestyle/life stage. Accommodating older seniors is a key planning issue across Ontario municipalities including the City of London, as a growing percentage of the population will reach 75 years of age and older over the next 15 years. The aging of the City's population is anticipated to drive the need for seniors' housing and other housing forms geared to older adults (i.e. assisted living, affordable housing, adult lifestyle housing).

The physical and socio-economic characteristics of the 75+ age group (on average) are considerably different than those of younger seniors, empty-nesters and working-age adults. On average, older seniors have less mobility, less disposable income and typically have increased health issues compared to younger seniors. Typically, these characteristics associated with this age group drive their relatively higher propensity for

medium- and high-density housing forms that are in proximity to urban amenities (e.g. hospitals/ health care facilities and other community facilities geared towards seniors).

Future housing needs in the City of London will also be increasingly impacted by the "Millennial" generation. This cohort represents a large and growing percentage share of the GGH population. While there is no standard age group associated with the Millennial generation, persons born between 1980 and 1992 best fit the definition of this age group. As of 2016, the Millennial population in the City of London represented 21% of the total population base (i.e. population between 19 and 31 years of age). Comparatively, this percentage is significantly higher than Middlesex County and the provincial average given the age and size of this cohort, Millennials play a key role for the City of London regarding labour force supply and future housing demand.

4.1.3 The Impacts of Increasing Ethnic Diversity on Future Housing Market Trends

The changing ethnic make-up of London is also anticipated to influence future housing needs associated with population growth. Figure 4-5 identifies the percentage total of population categorized as "visible minorities" according to the 2001 Census and 2011 National Household Survey (N.H.S.), within the City of London and the Province. Between 2001 and 2011, the percentage of visible minorities increased by 5% in the City of London. The growing share of visible minorities within the City of London stresses the importance to address and monitor housing needs as well as municipal service requirements related to this growing demographic segment.

Figure 4-5
City of London
Percentage Share of Population that is Visible Minority, 2001 and 2011

Source: Statistics Canada 2001 Census and 2011 National Household Survey
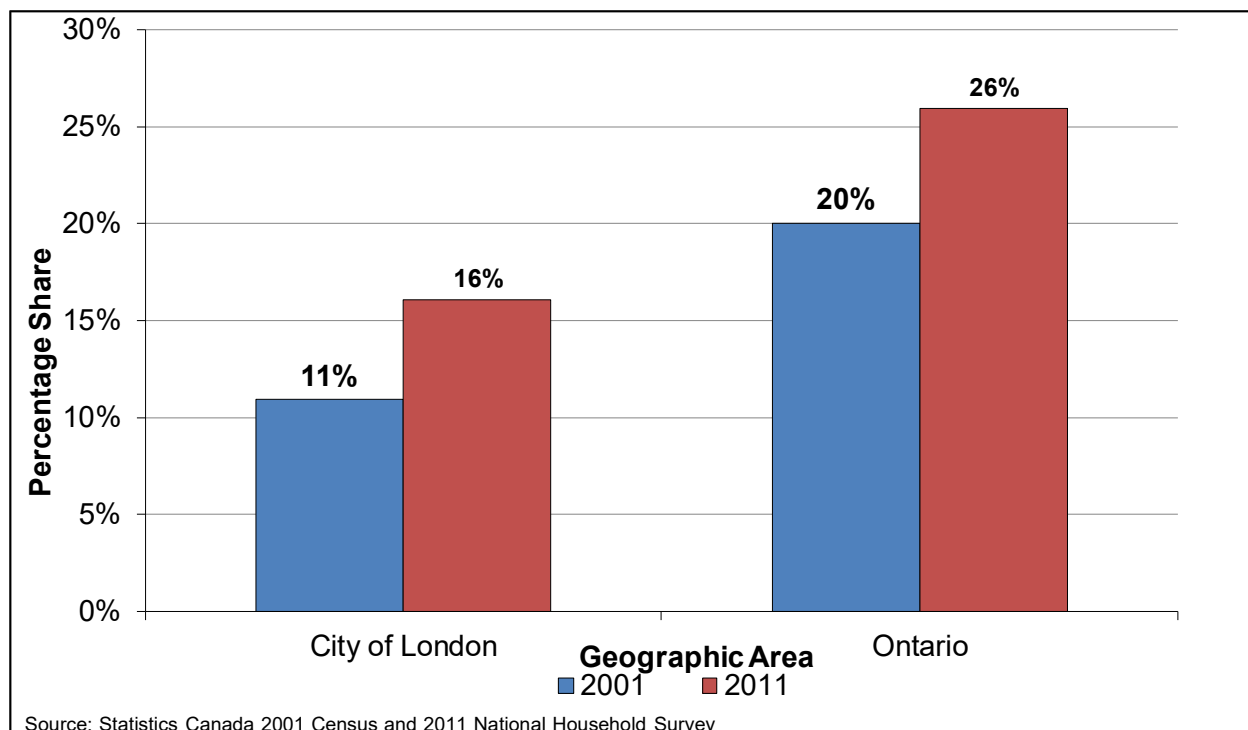
4.2   Review of Recent Housing Trends, City of London

4.2.1 Historical Residential Building Permit Activity by Dwelling Type for the London, 2006 to 2016

Figure 4-6 summarizes trends in historical residential building permit activity (new units only) for the City of London during the 2006 to 2016 period. Over the past decade:

- The City of London issued an average of approximately 2,060 residential building permits per year for new housing units;
- The average rate of residential building permit activity has modestly declined over the past five years relative to the 2006 to 2010 period;
- The share of residential building permits issued for low density housing has decreased from 51% during 2006 to 2011 period to 40% during the 2011 to 2016 period;
- During this same period, the City has also reported a modest decrease in the share of residential building permits issued for high-density dwellings. This decrease was off-set by a sharp increase in the share of building permits issued for new medium-density dwellings over the same time period; and

- The number of new residential building permits issues in 2016 rose sharply to 3,117, largely driven by large number of permits issued for new high-density residential dwellings.

Figure 4-6
City of London
Residential Building Permit Activity by Dwelling Type, 2006 to 2017

Source: City of London. 2017 is based up to June 30th, 2017 that has been annualized.
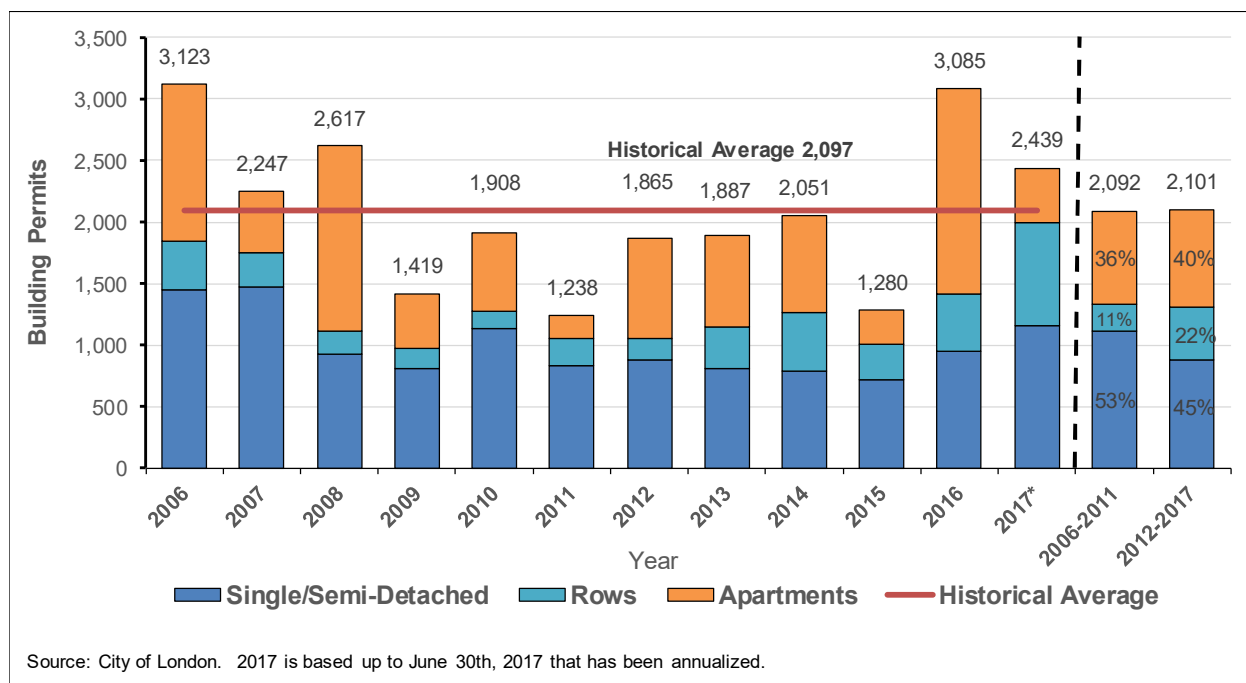
4.2.2 Housing Growth by Structure Type, 1996 to 2016

Figure 4-7 summarizes historical housing growth by structure type from 1996 to 2016 by Census period for the City of London. Key observations include:

- Low-density housing represents the largest share of new households occupied within the City of London over the past 20 years, comprising 53% of total household growth;
- The proportion of housing growth by structure type has fluctuated widely over the past 20 years, most notably for townhomes, and to a lesser extent for low and high-density households;
- Medium-density housing has historically made up a relatively small amount of housing growth in London over the past two decades; and
- Over the forecast period, medium-density housing is anticipated to comprise a growing share of the City's housing market given the relative affordability of medium-density households compared to single/semi-detached units.

Figure 4-7
City of London
Housing Growth by Structure Type, 1996 to 2016
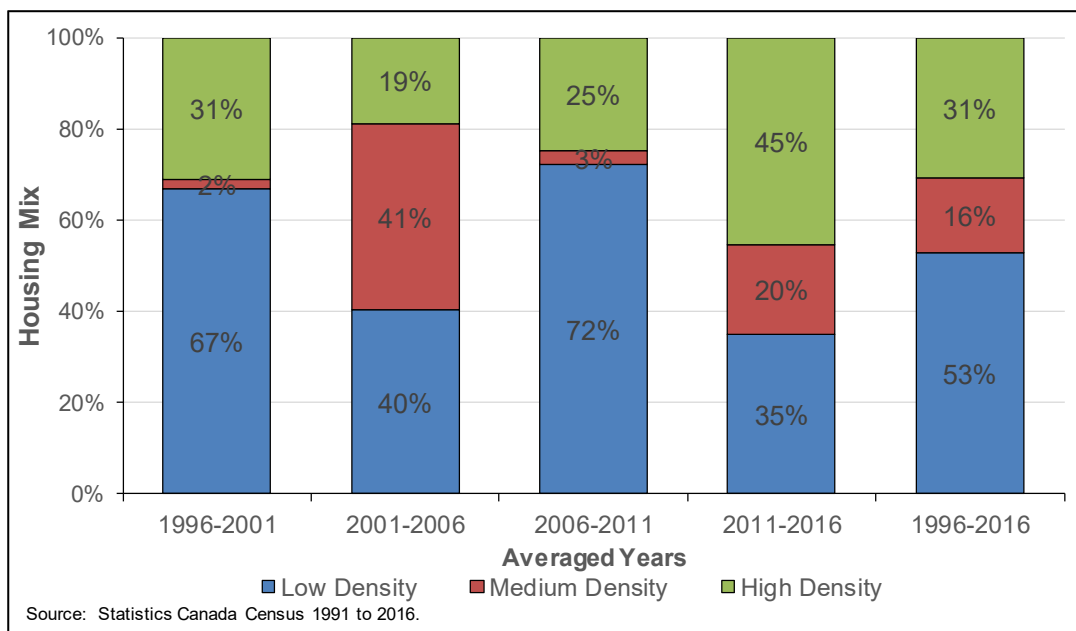
4.2.3 Housing Headship Rates, 1991 to 2016

A headship rate is defined as the ratio of primary household maintainers, or heads of households, by major population age group (i.e. cohort).[1] Between 1991 and 2016, the City's total headship rate increased modestly from 0.37 to 0.41 (refer to Appendix A for additional details). An understanding of historical headship rate trends is important because this information provides insights into household formation trends associated with population growth by age. While major fluctuations in headship rates are not common over time, the ratio of household maintainers per capita varies by population age group. For example, a municipality with a higher percentage of seniors will typically have a higher household maintainer ratio per capita (i.e. headship rate) compared to a municipality with a younger population. This is because households occupied by seniors typically have fewer children than households occupied by adults under 65 years of age. Accordingly, forecast trends in population age structure provide important insights into future headship rates and persons per units (PPU) trends for the City of London.

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[1] It is noted that each household is represented by one household maintainer.

4.2.4 Persons Per Housing Unit, 1991 to 2016

Figure 4-8 summarizes the historical PPU for the City of London from 1991 to 2016 in accordance with Statistics Canada Census data. For comparative purposes, PPU data for Middlesex County and the Province of Ontario has also been provided. Key observations include:

- The average PPU for the City of London has been steadily declining over the 1991 to 2016 period;
- This trend was also observed in Middlesex County and for the Province during this period;
- Both Middlesex County and the City of London experienced a slightly steeper PPU decline than the Province as whole during the 1991 to 2011 period; and
- In 2016, the average PPU for the City of London was 2.35, which is lower than the Middlesex County average of 2.40, and well below the Provincial average of 2.60.

The average PPU for the City of London is forecast to continue to decline over the long term. This downward trend in housing occupancy is expected to be driven by the continued aging of the population, which increases the proportionate share of empty-nester and single occupancy households. Over the medium to longer term (i.e. post 2021), the City's PPU decline rate is anticipated to be moderate, driven by increasing trends towards higher occupancy ground-oriented households and a modest increase in multi-family dwellings.

Figure 4-8
City of London
Historical Average Persons Per Unit

Source: Statistics Canada Census 1996 - 2016.
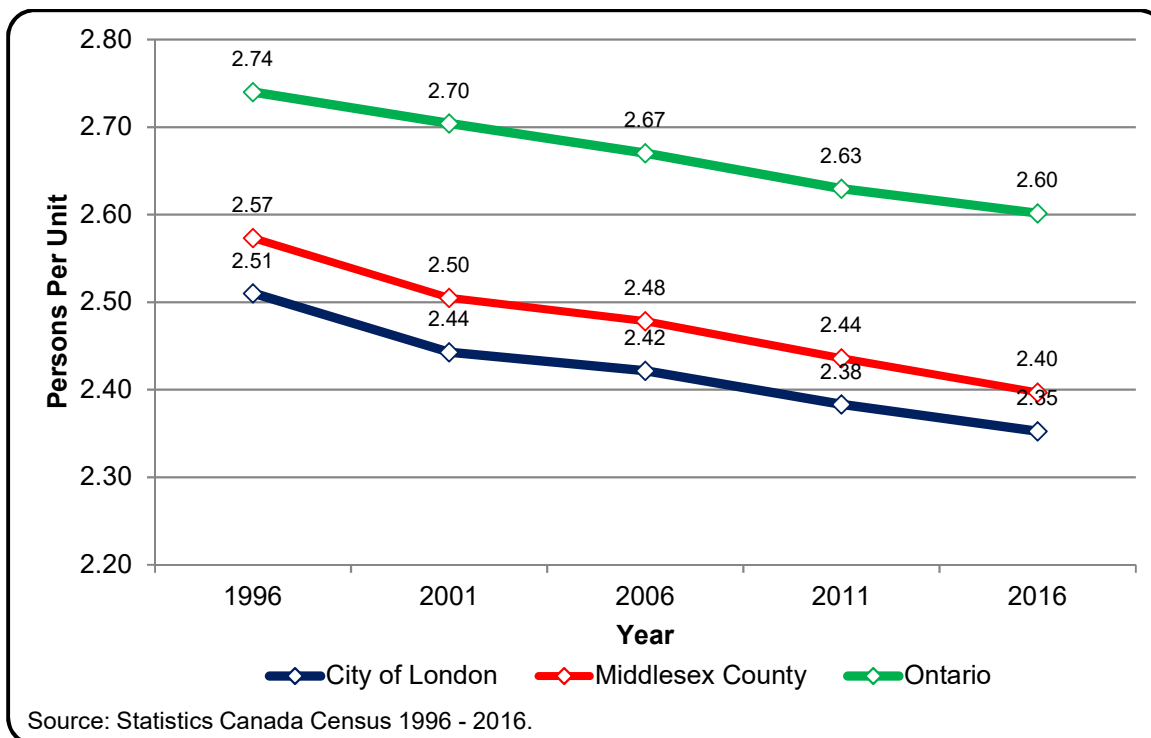
4.2.5 Historical Housing Propensity Trends by Structure Type, 2016

Figure 4-9 summarizes historical housing propensities trends by structure type for the City of London based on 2011 Statistics Canada Census data. Age-specific propensities measure housing demand by dwelling structure type by age of household maintainer.

As previously mentioned, population age structure impacts several factors such as income/affordability, lifestyle, family size, lifestyle decisions, health and mobility. In London, propensities for high-density housing (apartments and condominium units) are highest among younger age groups, while propensities for low density housing (single and semi-detached housing) are highest among population age groups between 35 to 64 years of age.

Figure 4-9 identifies that the demand for high-density dwellings is highest among those aged under 25. The preference for high-density dwellings also steadily increases for the 75+ age group. Between 2006 and 2011 housing propensities within the City of London did change significantly between age groups for additional information please refer to Appendix B.

Figure 4-9
City of London
Housing Propensity Trends by Structure Type, 2016

Source: Statistics Canada Census 2016
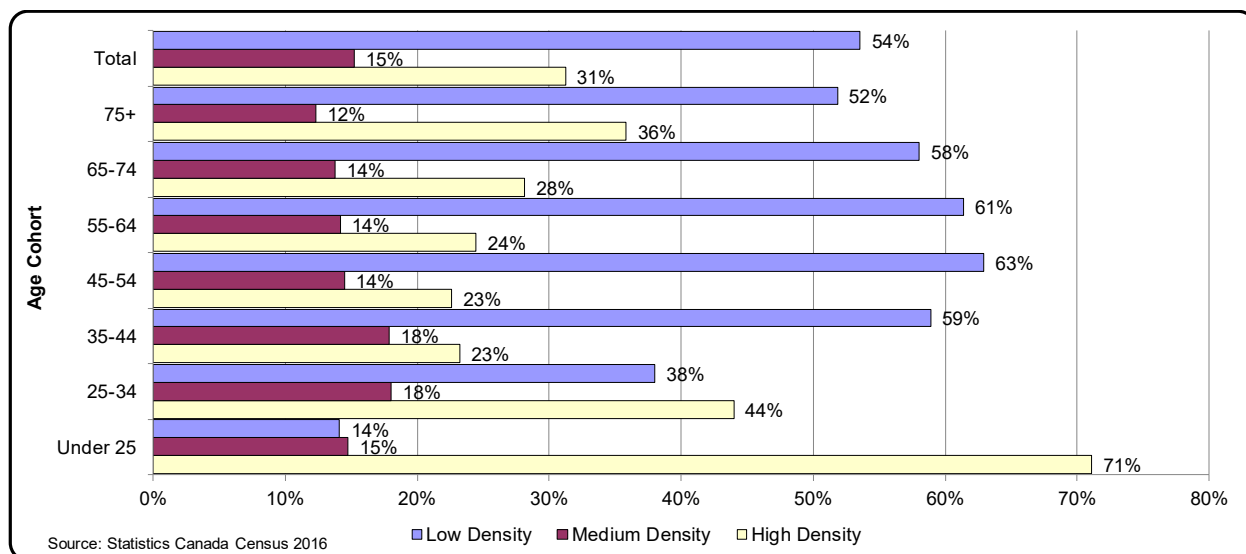
4.2.6 Historical Trends in Housing Prices and Housing Affordability, 2006 to 2016

Economic conditions also play a key role in shaping the rate, form, and location of urban development across the City. In recent years, many Southwestern Ontario municipalities have experienced a steady increase in housing prices driven by rising land prices, strong population growth and a recovering regional employment market.

In Ontario, housing appreciation has been strongest within the City of Toronto and the surrounding municipalities within the GGH.[1] This trend has resulted in a growing gap in housing prices between municipalities located within and outside the GGH This growing gap in housing prices between GGH and the City of London has been an important factor driving local and regional housing demand.

Figure 4-10 summarizes historical trends in housing price trends within the City of London over the 2006 to 2016 period by housing structure type. As illustrated below, housing prices have steadily increased for low-density households within the City of London over the past decade. During the same historical time period, housing appreciation in the City of London has been relatively lower for townhouse units and condominiums, as compared to single-detached units.

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[1] Within the City of Toronto, the average price of a new single-detached home in 2016 was $1,333,000.

Figure 4-10
City of London
Historical Housing Prices, 2006 to 2016

Source: Derived from the London St. Thomas Association of Realtors (LSTAR) Statistics Report by Watson & Associates Economists Ltd.
2006-2009 uses the Average Housing Price in London. 2010 - 2016 uses a weighted average of 2-storey and Bungalow style housing for Single Detached.
It should also be noted that this information is taken from the Multiple Service Listings (MLS), which includes resale.

4.3   Observations

Understanding and monitoring trends in demographics, household occupancy, age structure and income is important for the City of London. These trends have broad implications on the amount, type and density of future housing demand associated with population growth, as well as demands for public infrastructure, municipal services and schools.

Over the past 25 years, the City of London has experienced moderate to steady population growth across all major demographic groups (i.e. children, adults and seniors), largely driven by steady net migration across all ages and, to a lesser extent, natural increase (i.e. births less deaths). Residential development activity over the past two decades within the City of London has been largely driven by ground-oriented housing forms within the City's greenfield areas.

As the City's designated urban lands continue to mature and build out, a growing share of new residential development is expected to occur within the City's intensification nodes, corridors and other redevelopment areas within existing built-up areas. This shift in development patterns, along with the demographic trends discussed above, is anticipated to result in a continued gradual increase in the share of high-density housing

forms (i.e. low-, medium- and high-rise apartments) within the City over the medium and long term.

5. City of London Residential and Non-Residential Land Supply

5.1 Introduction

This Chapter briefly assesses the City of London's future residential and non-residential land supply potential.

5.2 Future Housing Supply Opportunities

5.2.1 Total Future Housing Supply by Development Status

Figures 5-1 to 5-4 summarize the City of London's current and future urban housing supply potential by stage of development within the development approvals process. This inventory is further categorized by housing structure. Also provided is a summary of residential supply by planning area and housing structure type. Key observations include:

- The City of London has a potential total of approximately 38,300 (57%) future residential units in the development approvals process and a potential total of approximately 28,800 (43%) active residential developments;
- Of the total residential units, currently within the municipal development process, 44% are in draft approved subdivision plans.
- Additionally, 22% of the total future housing supply is registered subdivision and condominium plans.
- Of the total urban units in the development approvals process, 29% are low density (single detached and semi-detached), 45% are medium density (townhouses) and 26% are high density (apartments);
- Of the Municipality's total residential supply potential, 28% are low density (single detached and semi-detached), 39% are medium density (townhouses) and 33% are high density (apartments).

Figure 5-1
City of London
Summary of Active and Future Residential Developments

Source: Derived from information provided by City of London by Watson & Associates Economists Ltd.
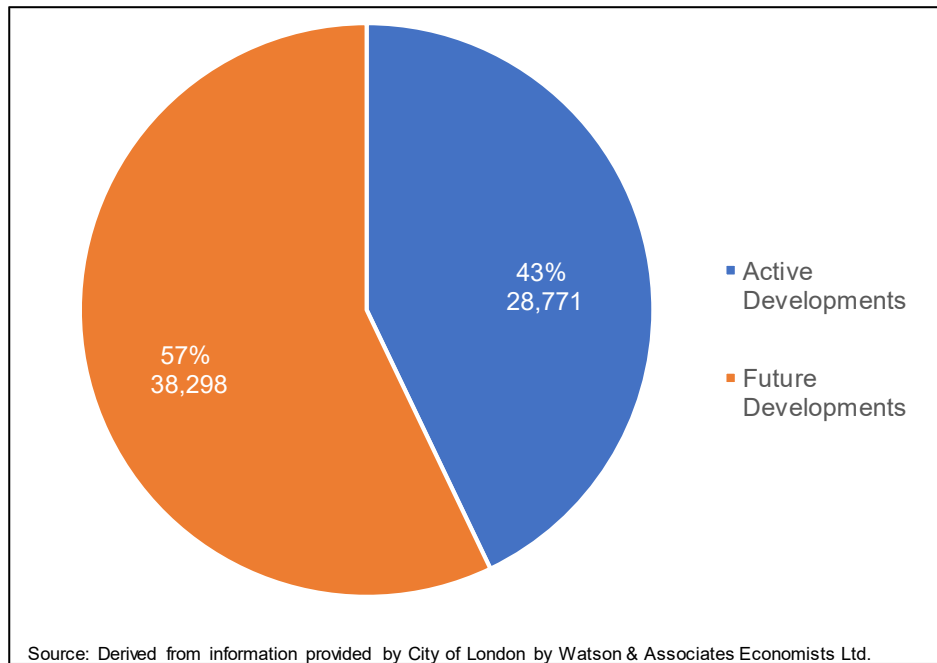
Figure 5-2
City of London
Summary of Residential Supply within the Development Approval Process

Source: Derived from information provided by City of London by Watson & Associates Economists Ltd.
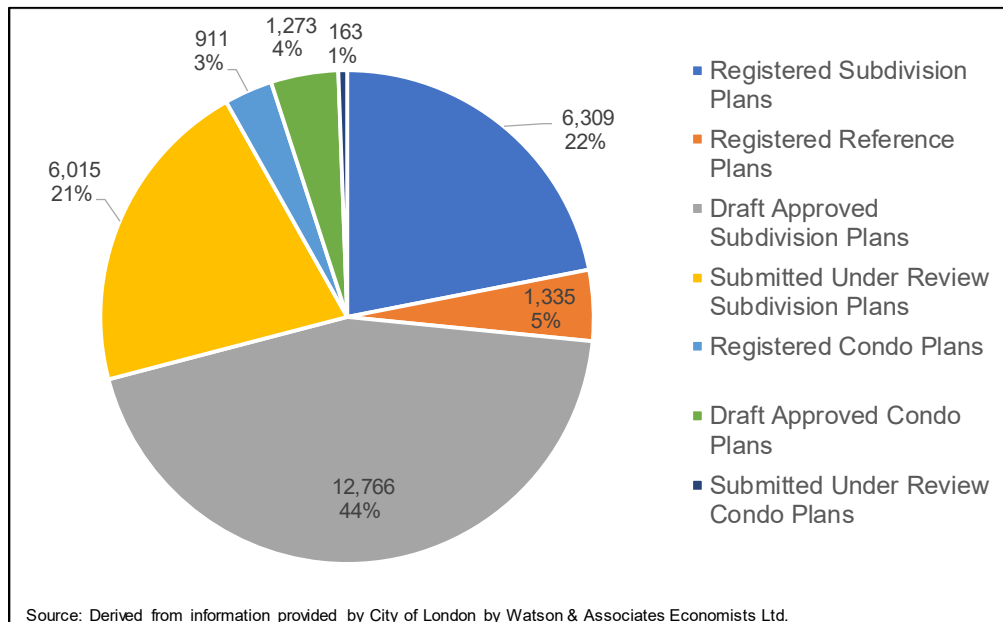
Figure 5-3
City of London
Summary of Future Residential Supply Housing Structure Type (2016)
(Active Developments Only)

Source: Derived from information provided by City of London by Watson & Associates Economists Ltd.
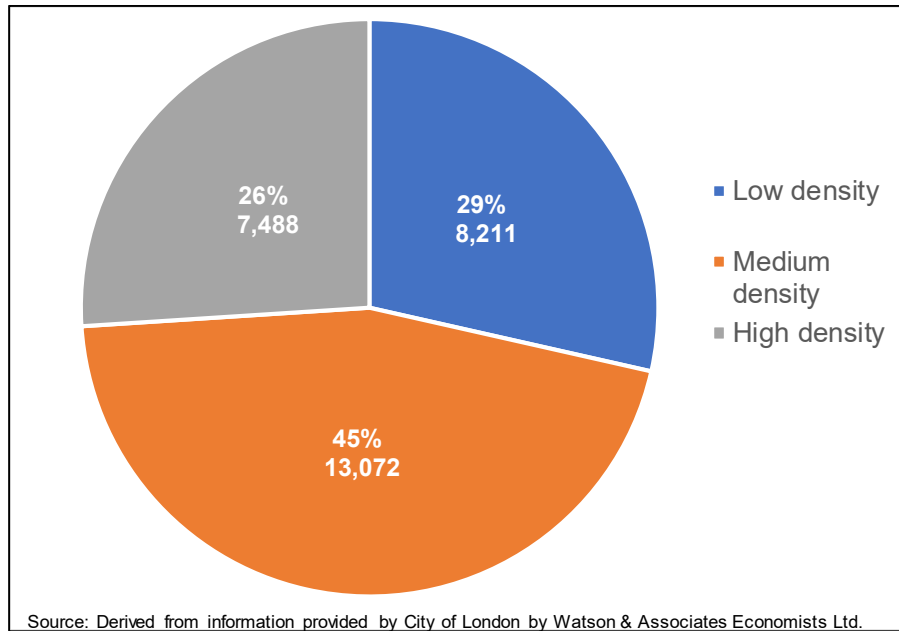
Figure 5-4
City of London
Summary of Future Residential Supply Housing Structure Type (2016)
(Active and Future Development)

Source: Derived from information provided by City of London by Watson & Associates Economists Ltd.
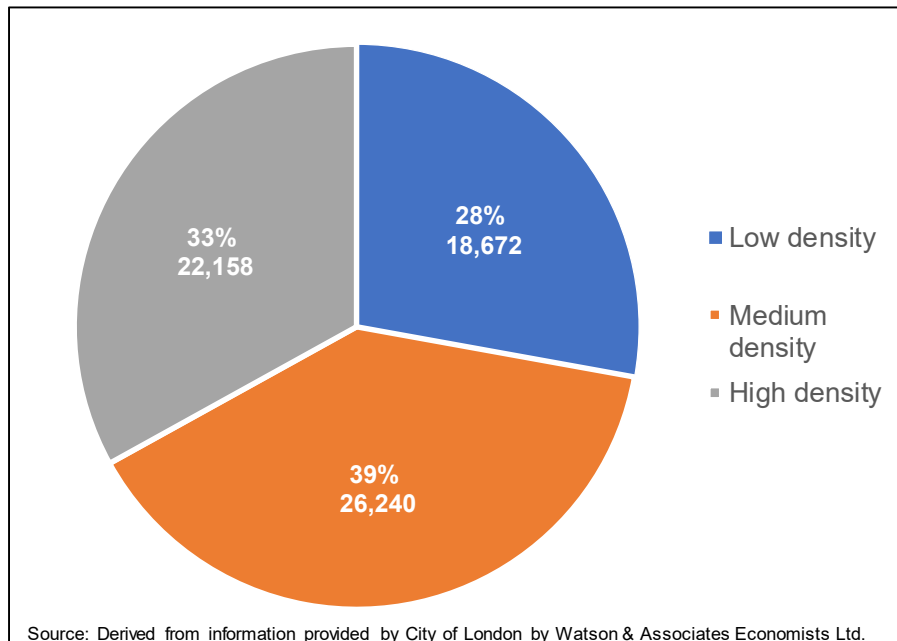
5.2.2 Future Housing Supply Opportunities by Geographic Location

Residential supply for the municipality can be further categorized by Built Area and Greenfield Area. A total of 77% of the City's future housing supply is located within Designated Greenfield Areas; of which 36% is identified as low density, 41% medium-density and 23% high density (refer to Figure 5-5 and 5-6). Of the remaining 23% of residential supply in the Built Area, 14% is identified low-density, 31% medium-density and 55% high density (refer to Figure 5-7).[1]

Figure 5-5
City of London
Summary of Residential Supply by Geographic Area (2016)

23%
19,670 ha

■ Total Built Area

■ Total Greenfield Area

77%
66,095 ha

Source: Derived from information provided by City of London by Watson & Associates Economists Ltd.

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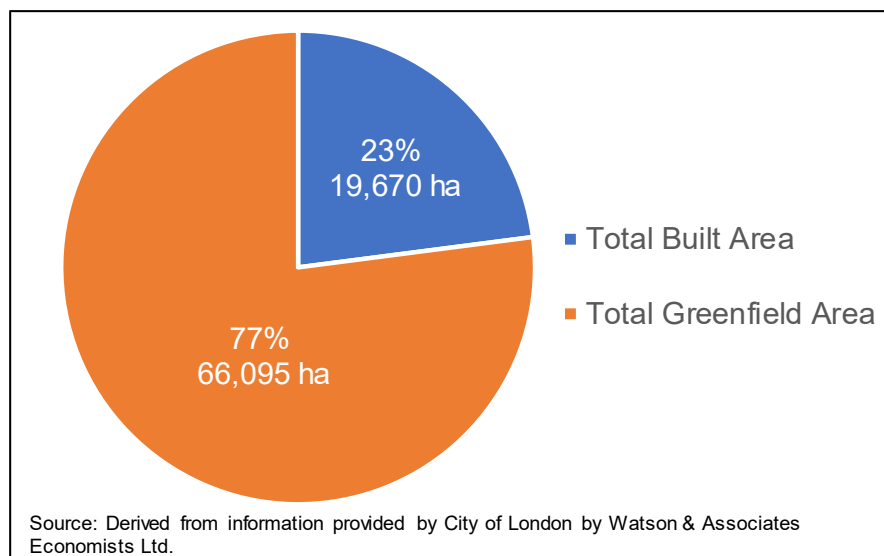
[1] Based on 2011 built boundary.

Figure 5-6
City of London
Summary of Greenfield Area Residential Supply by Density Type (2016)

Source: Derived from information provided by City of London by Watson & Associates Economists Ltd.
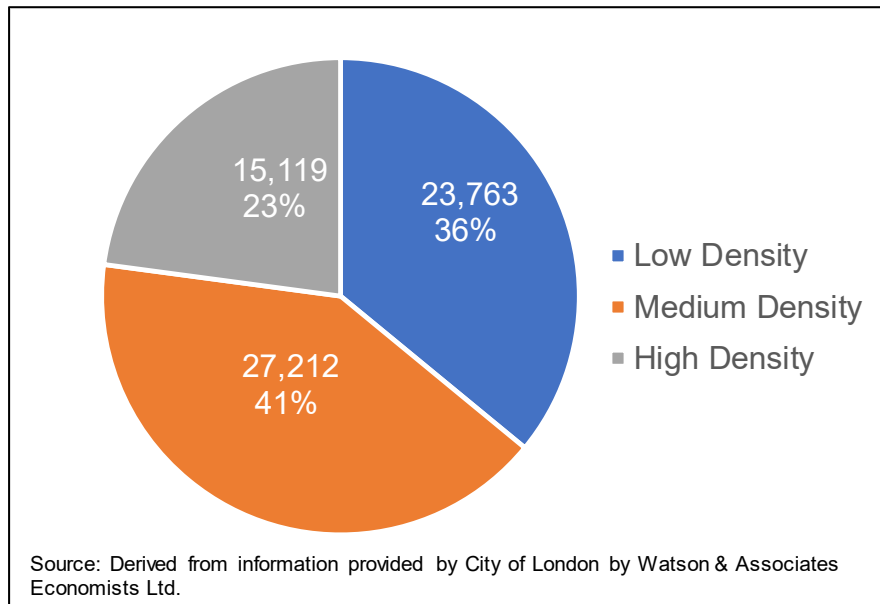
Figure 5-7
City of London
Summary of Built Area Residential Supply by Density Type

Source: Derived from information provided by City of London by Watson & Associates Economists Ltd.
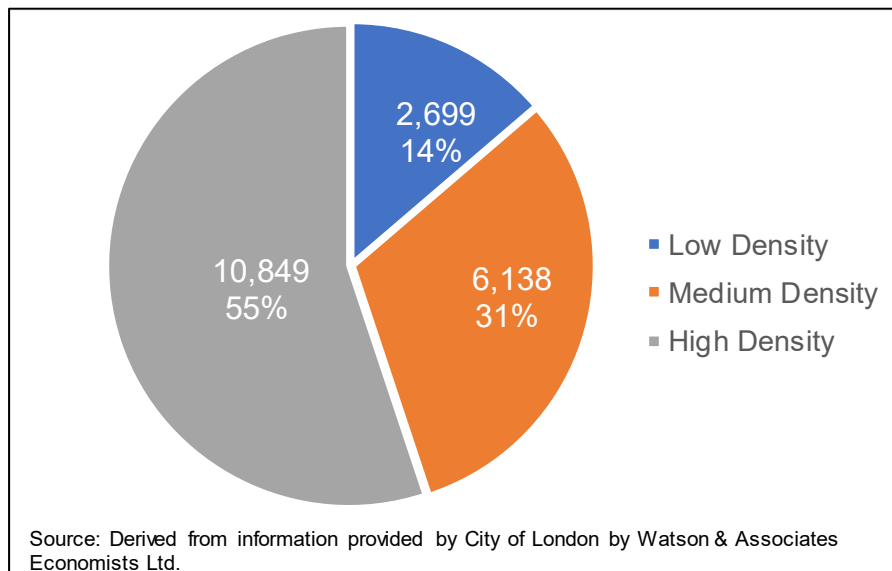
5.3 Vacant Employment Land Supply

5.3.1 Vacant Designated Employment Lands

Figure 5-8 summaries the supply of designated vacant employment land and shovel-ready employment land categorized by ownership type for the City of London. As of 2016, the City has a vacant employment land inventory of just over 1,200 ha, of which 81% of these lands are privately owned, while the remaining 19% are under municipal ownership. Of the City's total vacant designated employment lands supply, approximately 146 ha are shovel-ready. The majority of the City's vacant shovel-ready employment land supply is under municipal ownership.

Figure 5-8
City of London
Summary of Vacant Employment Lands by Ownership,
Land Area (Hectares), 2016

Source: Derived from City of London by Watson & Associates Economists Ltd.
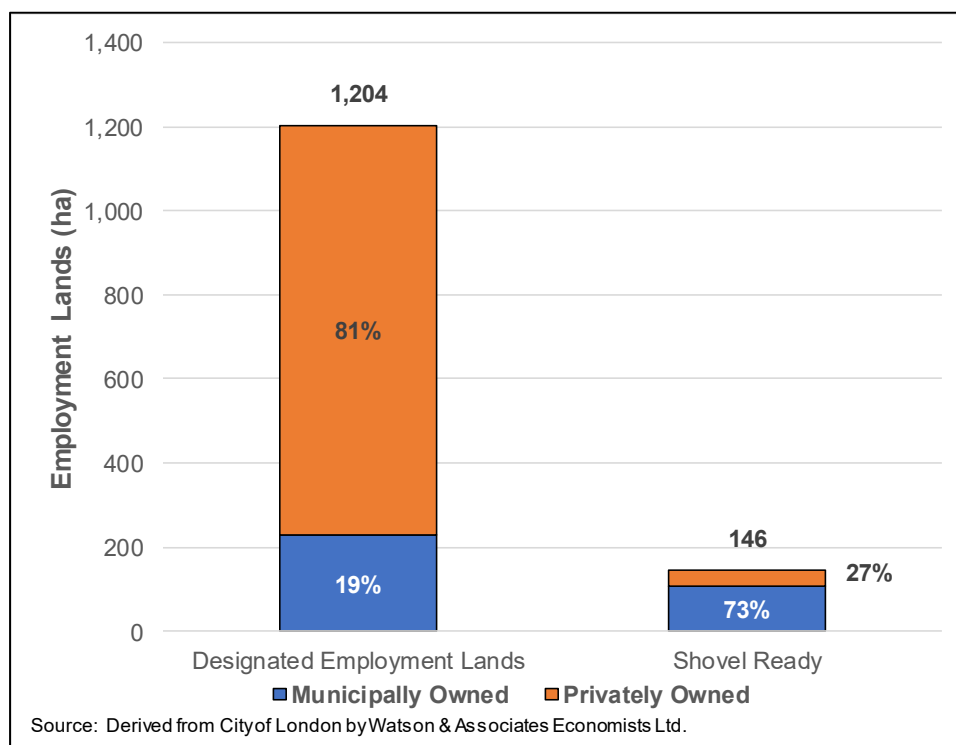
Figure 5-9 summarizes the supply of designated vacant employment land in hectares for each of the comparator municipalities as of 2016 by ownership type. This inventory includes all designated vacant employment lands, including serviced and servable lands. Key observations include the following:

- A total of 5,374 net ha of vacant, designated employment lands has been identified within the comparator municipalities surveyed;
- The City of Hamilton, City of London and the Town of Milton have significantly more designated employment lands than the other comparator municipalities surveyed;
- With a total of 19% of its employment lands under municipal ownership, the City of London has more municipally owned employment lands than the other comparator municipalities surveyed;
- All of the designated vacant employment lands available within the Town of Milton is privately owned, while municipal ownership of employment lands in the City of Barrie and the City of Kitchener is very limited;
- The Cities of Waterloo and Kitchener have a very small supply of designated employment lands with only 107 hectares and 120 hectares, respectively;
- A major component of the designated employment land supply in the City of Cambridge includes the currently un-serviced East-Side employment lands, which total 308 net hectares of developable land area. These employment lands are designated in the Region of Waterloo Official Plan and have been recently designated in the City of Cambridge Official Plan as Prime Industrial Strategic Reserve. As per the Region of Waterloo Official Plan, these lands are envisioned to accommodate large-scale industrial users; and
- The City of Hamilton has approximately 555 net hectares of developable designated employment lands in the Airport Employment Growth District (A.E.G.D.). These lands require servicing; however, they are expected to provide the City of Hamilton with employment growth opportunities by 2031. Transportation Master Plans have identified various infrastructure projects required for the development of the A.E.G.D. lands to the year 2031 and in April, 2015, the Ontario Municipal Board (O.M.B.) issued a decision resulting in a final Secondary Plan.

Figure 5-9
City of London
Designated Employment Lands, Land Area (Hectares), 2016

Source: Based on a survey by Watson & Associates Economists Ltd.
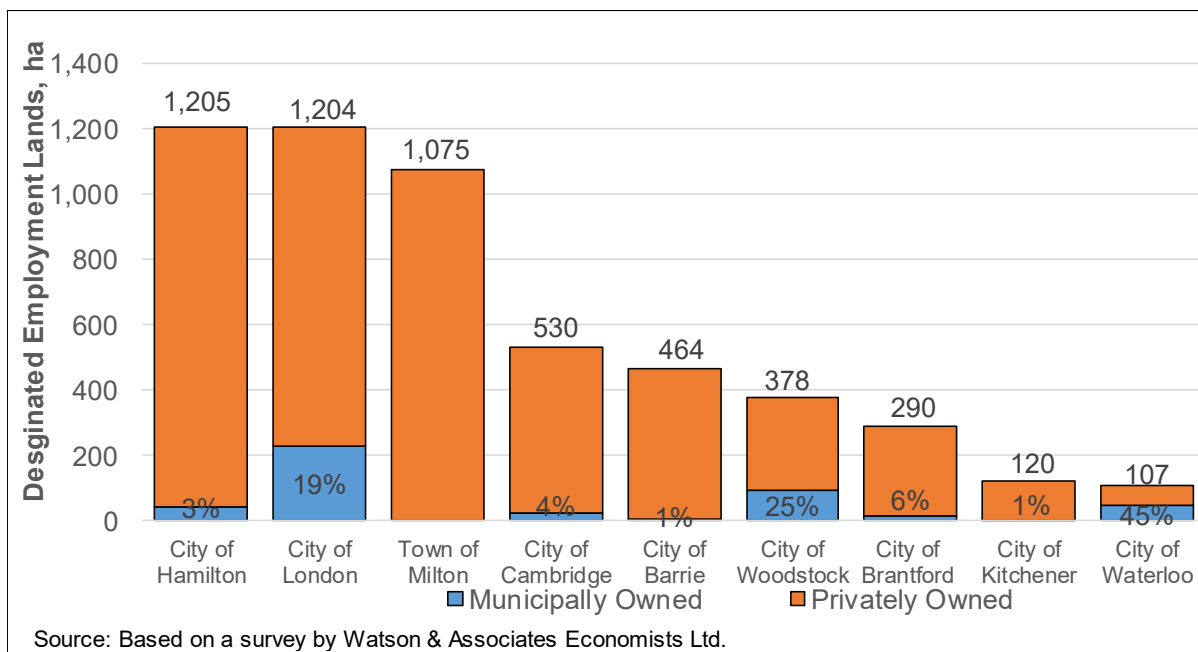
5.3.2 Vacant Shovel-ready Employment Lands

Figure 5-10 provides an overview of shovel-ready employment lands for each of the comparator municipalities. This review was completed based on data obtained from a variety of municipal reports, as well as a review utilizing Google Earth Imagery. For the purposes of this analysis, shovel-ready employment lands are defined as employment lands that are designated, serviced and have the potential to be developed within a short timeframe (within 6 months). Lands that currently lack road access or are landlocked, have poor site configuration, and/or are not subdivided, have not been included in the shovel-ready inventory. Key observations include the following:

- A total of 1,117 net ha of shovel-ready employment lands was inventoried within the comparator municipalities surveyed. This represents 21% of total designated employment lands within the comparator municipalities surveyed;
- The supply of shovel-ready lands ranges from 286 net hectares in the City of Hamilton to 36 net hectares in the City of Brantford;
- Within the City of Hamilton, approximately 6% of the shovel-ready land area comprises lands owned by the City;
- The City of Barrie has approximately 236 net hectares of shovel-ready employment lands, largely concentrated in the City's south end. Barrie has a

very small supply of municipally owned employment lands accounting for only 2% of the land area of the shovel-ready land supply;

- The City of London has the largest supply of municipally owned shovel-ready employment lands, totalling 73% of the City's total shovel-ready employment land supply; and
- The Cities of Woodstock and Cambridge have a modest shovel-ready employment land supply of 135 net hectares and 103 net hectares, respectively. Municipally owned shovel-ready employment lands account for a large share of the shovel-ready employment land supply in Woodstock and Cambridge at 27% and 22%, respectively.

Figure 5-10
City of London
Shovel-ready Employment Lands, Land Area (Hectares) by Ownership, 2016

Source: Based on a survey by Watson & Associates Economists Ltd.
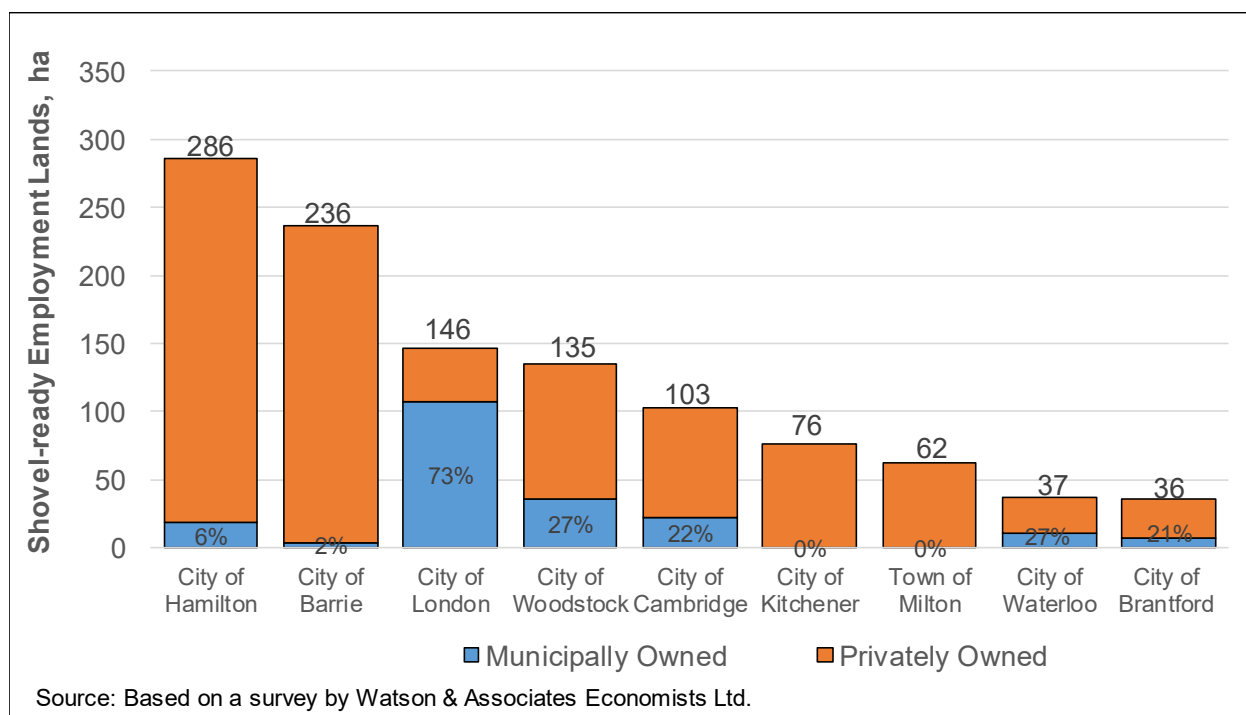
Figure 5-11 summarizes the supply of shovel-ready employment lands categorized by large parcels (5 ha and greater) and small to medium parcels (less than 5 ha). Key observations include the following:

- The Cities of London and Hamilton have a large supply of shovel-ready lands to accommodate large-scale users requiring sites of 5 hectares or greater. Within the City of London, the supply of large parcels accounts for 78% of the total land

area of shovel-ready lands, while in the City of Hamilton the supply of large parcels accounts for 32% of the total shovel-ready land supply; and

- The Cities of Barrie, Brantford, Waterloo, Cambridge, Kitchener and the Town of Milton currently have a very limited supply of shovel-ready employment lands available to accommodate large-scale industrial users requiring sites which are 5 hectares or greater in area.

Figure 5-11
City of London
Shovel-ready Employment Lands, Land Area (Hectares) by Parcel Size, 2016

Source: Watson & Associates Economists Ltd.
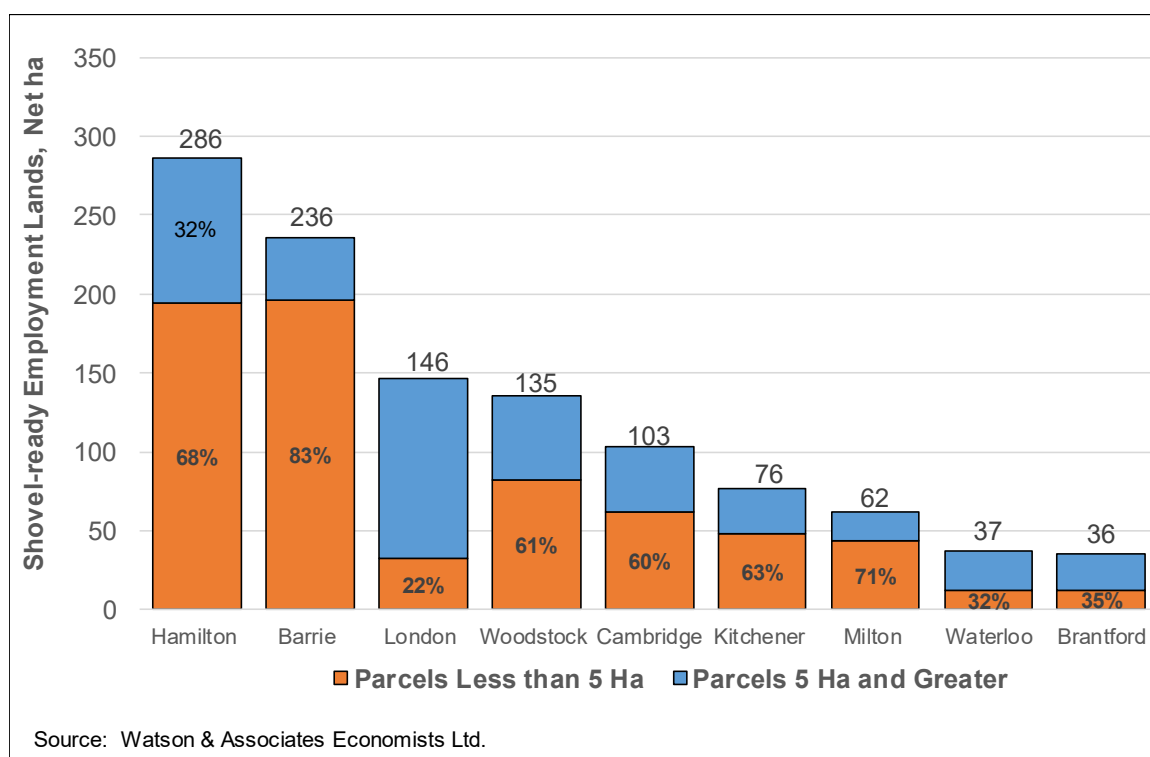
5.4   Conclusions

A major factor in the future competitiveness of London's economic base, which is largely controllable by the City, relates to the supply of vacant serviced and serviceable residential and non-residential lands. The City of London has a significant supply of future housing within its vacant lands inventory totalling just over 67,000 potential housing units. This level of housing supply is more than sufficient to accommodate the City-wide housing forecast to the year 2044. London also contains a sufficient City-wide supply of housing units across a wide-range of housing types which are currently identified in active plans. Further consideration, however, will need to be given to the location of the City's housing supply in accordance with anticipated short- to medium-

term housing demand. This assessment will help inform and prioritize the phasing of the City's future housing future greenfield planning areas.

The City of London also has an ample supply of designated vacant employment lands to accommodate industrial growth over the long-term estimated at just over 1,200 ha (2,965 acres). Notwithstanding, the adequacy of the City's supply of vacant designated employment lands, London's inventory of "shovel-ready" employment lands is limited to approximately 146 ha (361 acres). In order to ensure that employment development on employment lands is not unduly constrained, the City should explore options which would encourage the servicing of additional privately owned industrial lands.

6. Population and Housing Forecast, 2014 to 2044

6.1 Introduction

This Chapter provides an assessment of the long-term population and housing growth potential for the City of London to the year 2044 in five-year increments building on the analysis summarized in Chapters 3 through 5.[1] In developing the City of London long-term population forecast, considerations have also been given to the most recent long-term population projections for Middlesex County, based on the Ministry of Finance (MOF) Spring projections – reference scenario[2,3]

6.2 Middlesex County Long-Term Population Forecast, 2016 to 2041

Figure 6-1 compares the long-term population forecast for Middlesex County[2] in accordance with the Spring 2017 MOF reference scenario against the Middlesex County[2] population forecast prepared by Altus Group in 2012.[4] Overall, the population growth forecast for Middlesex County as per the Spring 2017 MOF projections are tracking slightly higher than the Middlesex County population forecast prepared by Altus Group in 2012. By 2041, the Spring 2017 MOF population forecast is projected to reach a population of 600,000 persons, which is approximately 12,400 persons higher than the 2012 Middlesex County population projections prepared by Altus Group. Based on our review of recent population growth trends between the City of London and Middlesex County, it would appear that the majority of the additional population growth assigned to Middlesex County[2], as per the Spring 2017 MOF projections, should be allocated to the City of London.

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[1] The 2041 to 2044 period represents a three-year increment.
[2] For the purpose of this analysis, Middlesex County includes the City of London.
[3] Ministry of Finance, Spring 2017 Update, Table 13.8: Population by five-year age group, 2016–2041 — reference scenario Middlesex.
[4] Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario 2011 Update.

Figure 6-1
Middlesex County
Long-Term Population Forecast, 2016 to 2041

Source: Ministry of Finance Annual Population Projections, from 2016 to 2041. Altus Forecast numbers from Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario, 2011 Update. Includes an undercount of 2.7%. Numbers may not add up due to rounding.
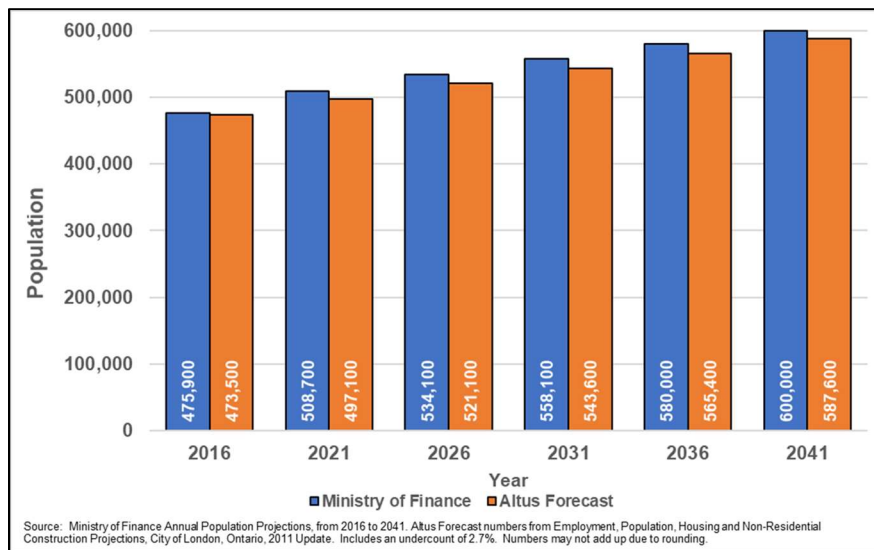
Figure 6-2 summarizes the Spring 2017 MOF population projections for Middlesex County[1] by major age cohort, while Figure 6-3 illustrates the Middlesex County[1] population projection by age cohort prepared by Altus Group in 2012. As summarized below, the Spring 2017 MOF population projections anticipates a slightly more aggressive shift in the population age structure towards the older segments of the population (i.e. 55+). This trend is offset by a more aggressive decline in the share of children, young adults/adults (i.e. 0-44 age groups). For more detailed information about the Ministry of Finance forecast and Altus forecast, please refer to Appendix D.

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[1] For the purpose of this assignment, Middlesex County includes the City of London.

Figure 6-2
Ministry of Finance Spring 2017 Projections for Middlesex County
Population Forecast by Age Cohort, 2016 to 2041

Source: Data derived from Ministry of Finance Spring 2017 Forecast for Middlesex County by Watson & Associates Economists Ltd.
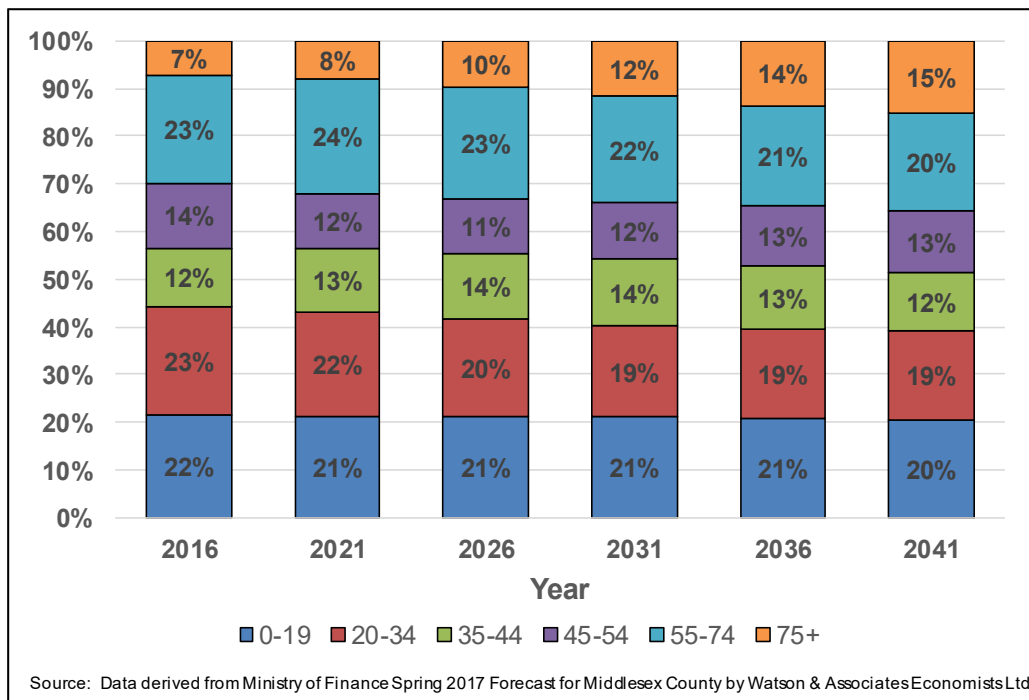
Figure 6-3
Altus Group 2012 Projections for Middlesex County
Population Forecast by Age Cohort, 2016 to 2041

Source: Employment, Population, Housing, and Non-Residential Construction Projections, City of London, Ontario, 2011 Update by Altus Conulting, 2012.
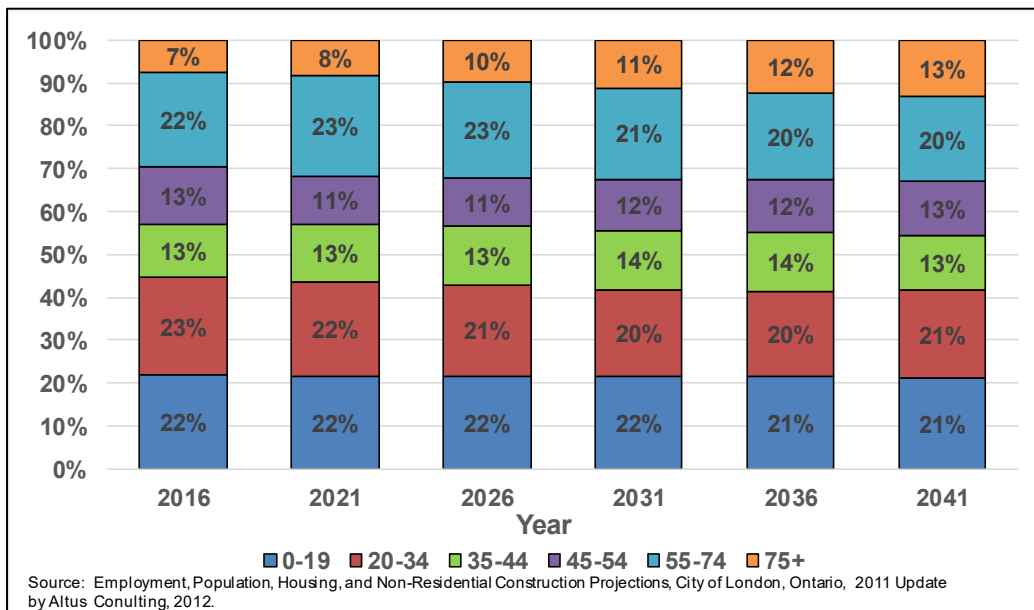
6.3   City of London Long-Term Population Growth Scenarios

As previously discussed, a broad range of considerations related to demographics, economics, socio-economics and infrastructure development are anticipated to drive future growth throughout the City over the long-term planning horizon. These factors will not only impact the rate and magnitude of growth but will also influence the form, density and location of residential development throughout the City.

Building on the demographic and economic analysis provided in Chapters 3 and 4, a total of three long-term population and housing forecasts have been prepared for the City of London, including a Low Growth Scenario, Reference Growth Scenario, and High Growth Scenario. A range of forecast population and housing growth has been generated from these respective scenarios largely based on varying assumptions regarding annual net migration and corresponding new housing construction. Figure 6-4 graphically summarizes the two-alternative long-term population growth forecasts for the City as well as the Reference Growth Scenario. It is noted that the long-term population growth scenarios include an upward adjustment of approximately 2.7% to account for the net census undercount.[1]

Low Population Growth Scenario: The Low Growth Scenario assumes that the City will grow at an average annual growth rate of 0.5% per year. This scenario assumes that net migration will not significantly rise relative to historical trends. As a result of declining natural increase, the City's population growth rate is forecast to steadily decline from 1.0% (2016-2021) to 0.5% (2016-2044).

High Population Growth Scenario: Under the High Growth Scenario the City's population is forecast to grow at an average annual rate of 1.2% per year. This represents an average annual growth rate which is slightly higher than what the City has achieved in relatively high historic growth periods such as 2001-2006 and 2011-2016.

Reference Population Growth Scenario: Assumes that the City of London will achieve a 2044 population forecast of 504,000 by 2044. This represents an annual population growth rate of 0.9% between 2016 and 2044. In accordance with historical labour force and population growth trends within the London CMA, and the City of London as well as a review of forecast economic growth and net migration potential for

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[1] The net Census undercount represents the net number of persons missed during Census enumeration.

the City of London, the Reference Population Growth Scenario is recommended as the preferred long-term scenario.

**Figure 6-4
City of London
Population Growth Forecast Scenarios, 2016 to 2044**

Source: Watson & Associates Economists Ltd.
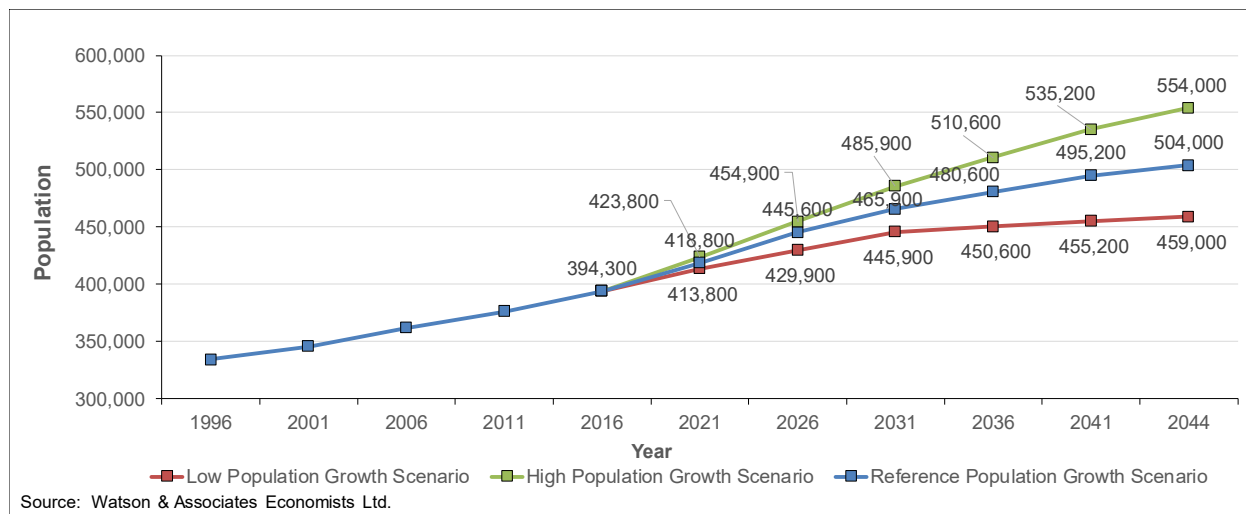
6.3 Labour Force Growth Forecast, 2016 to 2044

Figure 6-5 summarizes the long-term labour forecast growth forecast for the City of London from 2016 to 2044 (refer to Appendix C). As previously addressed in Chapter 2, local labour force growth represents the primary driver of future net migration within the City of London. The City's forecast labour force growth potential is largely tied local employment growth opportunities within the City as well as employment growth potential within primary and secondary commuter-sheds (i.e. potential opportunities for out-commuters).

Based on our review of historical labour force trends by place of work as well as future local and regional employment growth potential, it is anticipated that the share of the City's labour forecast will gradually shift towards those who commute outside of the City for employment and those who have no fixed place of work. Notwithstanding this trend, City of London residents who live/work within the City (including those who work from home) will continue to comprise the majority of the City's future labour force base. By 2031, the City of London total labour force is forecast to grow to 236,000, which represents an increase of 24,000 over the next 15 years. By 2044, the City's total labour force is forecast to reach 266,000, representing a further increase of 30,000 over 13 years.

As previously identified, the population and labour force base are aging at across the Province as well as at the regional level. Looking forward, the aging labour force base is anticipated to result in a gradual decline in the labour force participation rates over the first half of the forecast period (2016 to 2031) from 64% to 60%.[1] By 2031, labour force participation rates are forecast to stabilize, followed by a slight increase to approximately 61%, largely driven by higher labour force participation in the 55+ age group over the long-term.

Over the first half of the forecast period, labour forecast growth rates are forecast to grow at a slightly lower rate relative to recent trends experienced over the past 15 years. As previously discussed in Chapter 3, the City's labour force grew at an annual rate of 1.2% between 2001 and 2016. During the 2031 to 2041 period, the City of London labour force growth rate is forecast to stabilize at approximately 0.9% annually.

Figure 6-5
City of London
Forecast Labour Force Growth, 2016 to 2044

Source: Derived from Statistics Canada Employment data for 2001-2016, by Watson & Associates Economists Ltd. Projections from 2021-2044 by Watson & Associates Economists Ltd.

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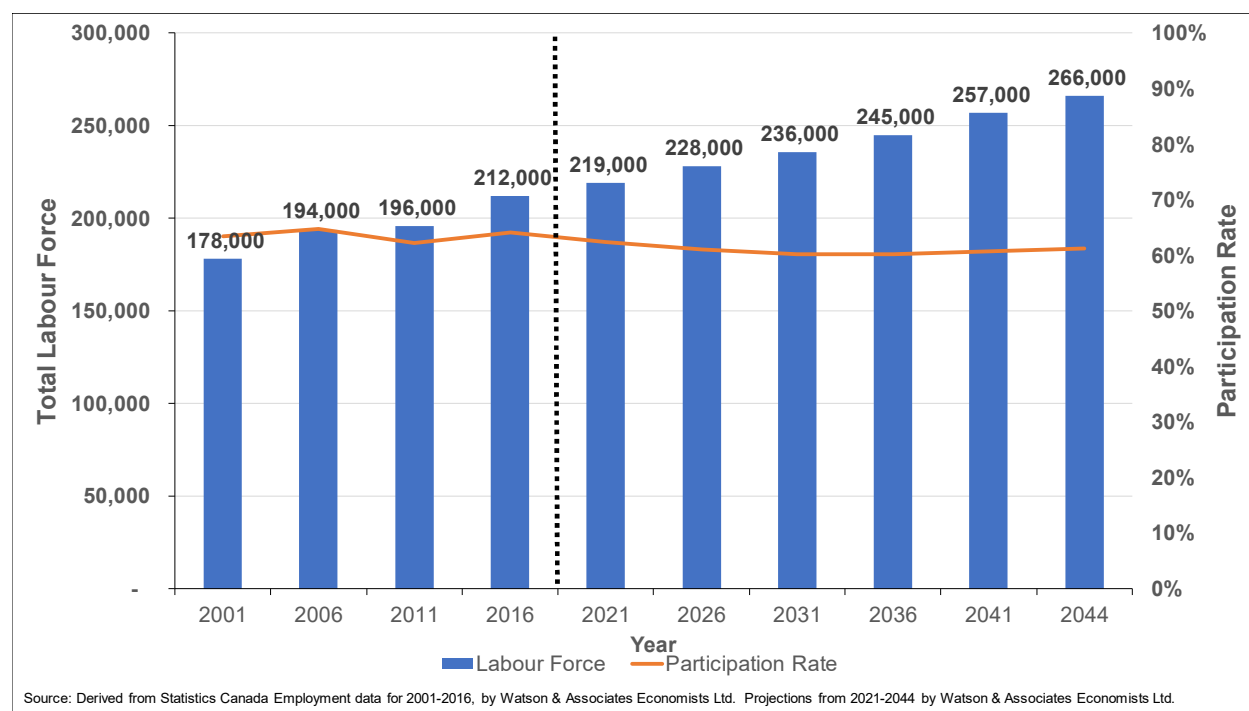
[1] The labour force participation rate is defined as ratio of employed and unemployed people to the total working-age population (aged 15 years and older).

6.4   Components of Forecast Population Growth

6.4.1   City of London Net Migration Forecast, 2016 to 2044

As previously discussed, net migration represents the primary driver of long-term population growth for the City of London. Over the next several decades, the City is anticipated to experience relatively strong net migration across all major age groups. Similar to recent trends, net migration trends are anticipated to be strongest within the 0-19 and 20-34 age group (children and young adults). As previously discussed, net migration in the City of London is anticipated to be largely driven by the long-term economic growth prospects in the regional economy and surrounding commuter-shed. Local housing growth opportunities across a broad range of demographic groups (i.e. first-time homebuyers, families, empty-nesters and seniors), and the City's attractiveness as a place to work and live are also identified as key drivers of net future migration within the City.

Figure 6-6 summarizes forecast net migration for the City of London over the 2016 to 2044 forecast period relative to actual net migration levels achieved during the 1991 to 2011 period. In comparison to historical trends, average net migration over the next 28 years is forecast to be well above to historical levels experienced between 1991 and 2011. The City of London is forecast to add an average of approximately 3,540 net migrants annually between 2016 and 2041, or approximately 17,700 every five years.

Figure 6-6
City of London
Forecast Net Migration (Reference Population Growth Scenario)

Source: Historical Net Migration Derived from Statistics Canada, Demography Division
Forecast Net Migration estimated by Watson & Associates Economists Ltd., 2017
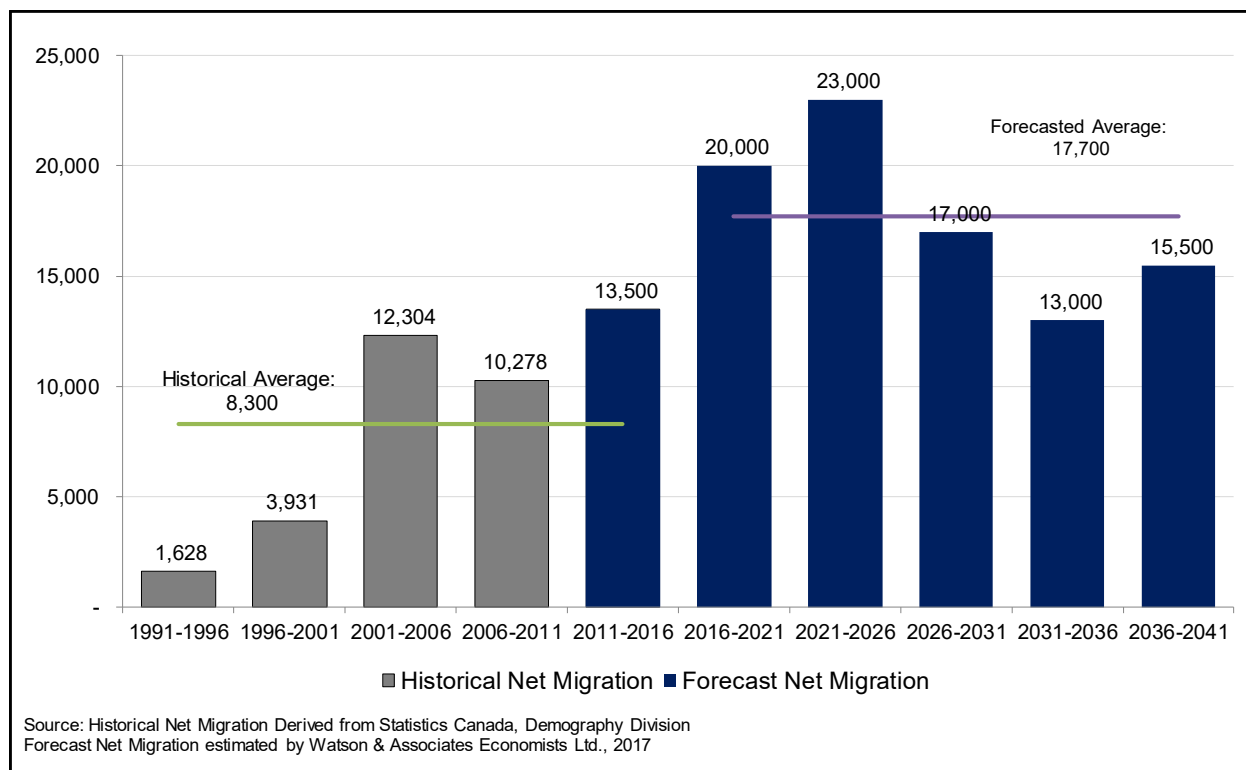
6.4.2 Forecast Trends in Natural Increase (Births Less Deaths), 2016 to 2044

As previously discussed, population growth associated with natural increase steadily diminished between 1991 and 2016 for the City of London as a result of the City's aging population combined with lower fertility rates relative to historical trends. Over the forecast period, the population growth from natural increase is forecast to steadily decline between 2016 and 2044 due to the continued aging of the City's population. This trend is consistent with most Ontario and Canadian municipalities. The implication of this trend is that the City will become increasingly dependent on net migration as a source of population growth. As illustrated in Figure 6-7, net migration is anticipated to comprise approximately 88% of total population growth for the City of London during the 2016 to 2041 period.

Figure 6-7
City of London
Historical and Forecast Net Migration vs. Natural Increase

Source: Derived from Statistics Canada, Demography Division. 2006-2011 estimated by Watson & Associates Economists Ltd., includes Census undercount of approximately 2.73%. 2016 Population increase is an estimate by Watson & Associates Economists Ltd.
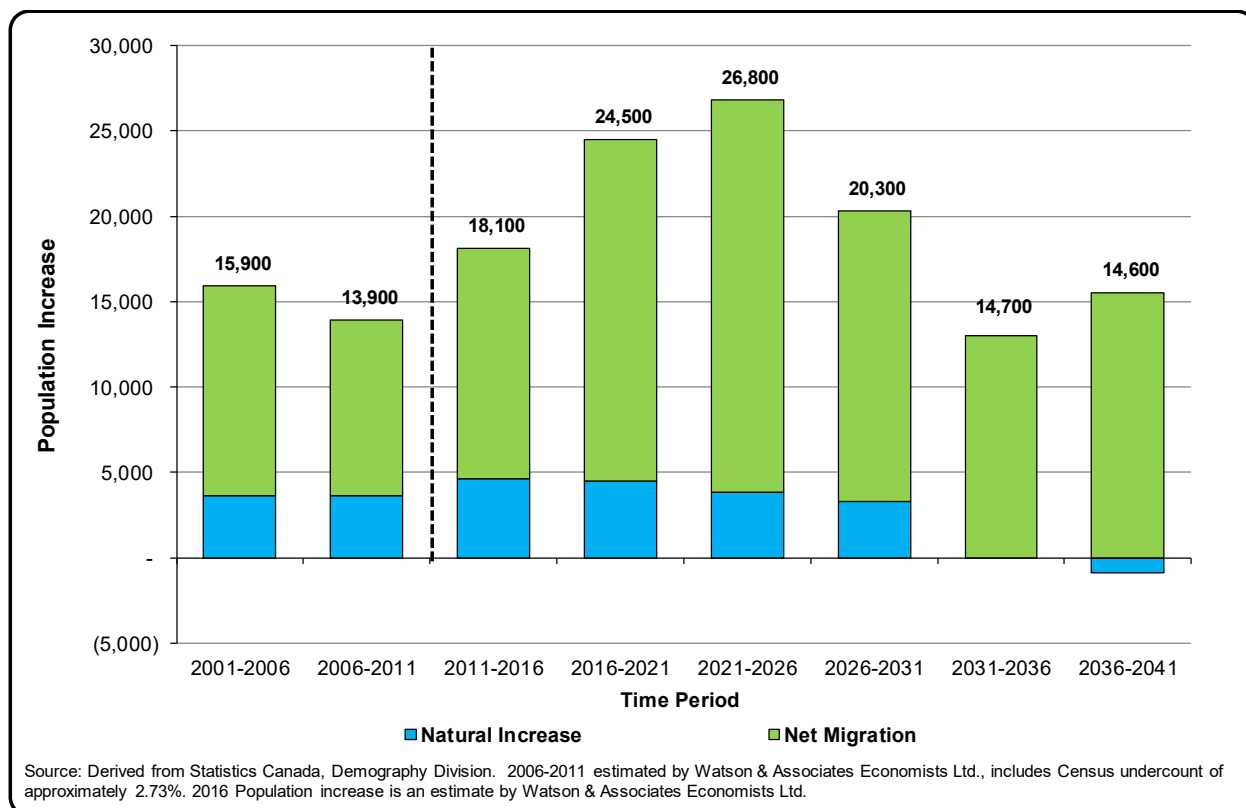
6.5   City of London Population Forecast, 2016 to 2044

Figure 6-8 summarizes the City's Reference Growth Scenario in five-year increments over the 2016 to 2044 forecast period relative to historical population between 1991 and 2016. For comparative purposes, the 2012 (Altus) population forecast for the City of London has also been provided.

Adjusted for the Census undercount, the City of London is forecast to reach a population of approximately 465,900 by 2031 under the Reference Population Growth Scenario. By 2041, the City's population is forecast to grow to 495,200 and ultimately 504,000 by 2044.[1] Under this Growth Scenario, the City's annual population growth rate between 2016 and 2031 is forecast to average 1.1% annually, declining to 0.6% during the 2031 to 2044 period (refer to Appendix D for additional details).

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[1] Population forecast includes the net Census undercount, which is estimated at 2.7%.

Figure 6-8
City of London
Population Forecast, 2016 to 2044 (Includes Net Census Undercount)

Source: London 2012 forecast is based on Altus Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario, 2011 Update. London 2017 forecast derived by Watson & Associates Economists Ltd. Both forecasts include an undercount of 2.7%.
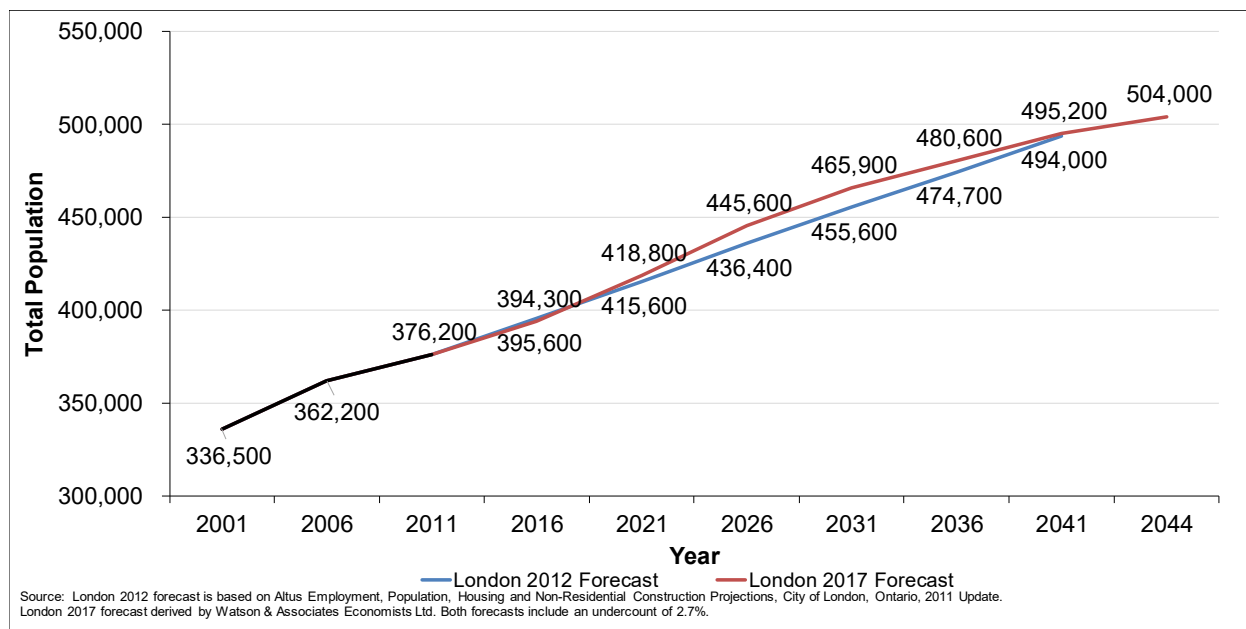
6.5.1 Population Forecast by Age Cohort

Figure 6-9 summarizes the 2044 population growth forecast by major age group over the 2016 to 2044 period for the City of London. Key observations are as follows:

- The percentage of population in the 0-19 age cohort (youth population) is forecast to gradually decline from 22% to 20%;
- London's young adult/adult population (20-54 years of age) is the largest age cohort group, and is forecast to remain steady at 47% of the population from 2016 to 2044:
- The 55-74 age group (empty-nesters/younger seniors) is forecast to marginally decrease increase from 22% in 2016 to 20% in 2044; and
- The percentage of the population in the 75+ age group (seniors) is forecast to double over the 28 years from 7% in 2016 to 14% in 2044.

Figure 6-9
City of London
Population by Age Forecast, 2016 to 2044

Source: Watson & Associates Economists Ltd., 2017. Includes an undercount of approximately 2.7%
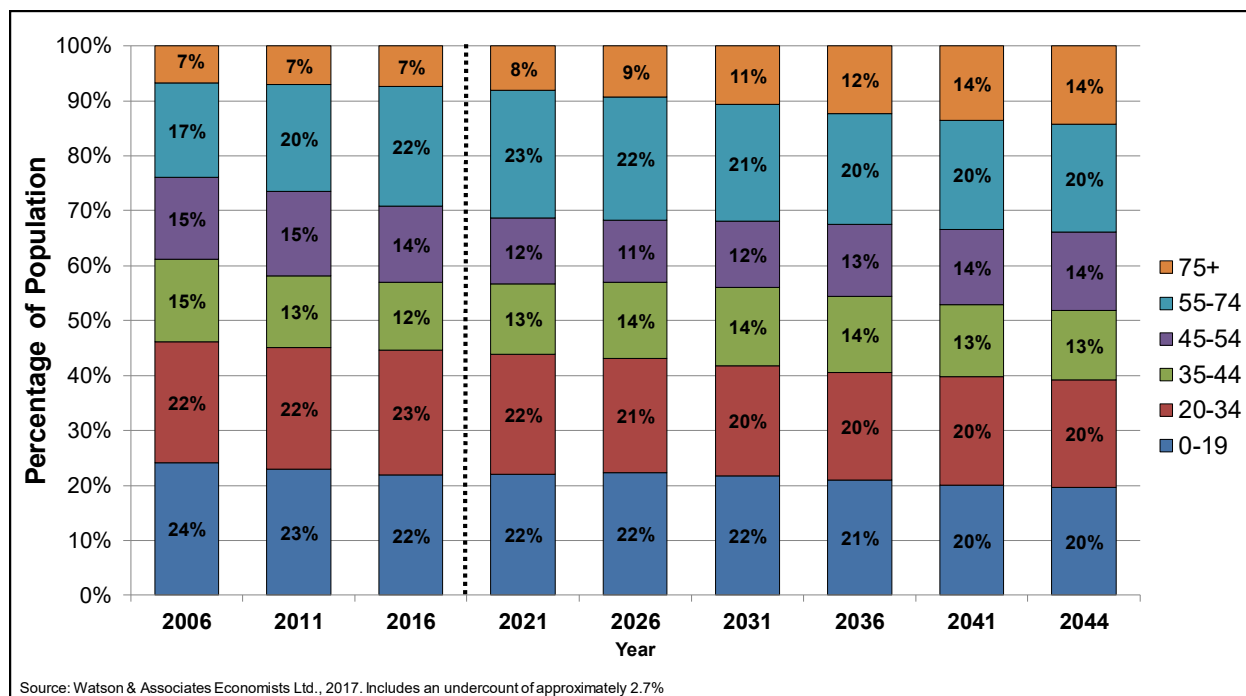
6.6 City of London Population Share Relative to Middlesex County[1]

Figure 6-10 summarises the share of the County's population and compares it to London's percentage share of population over a 45-year period. As illustrated in the graph below, the City of London's total population historically made up roughly 82% of Middlesex's total population. Over the 2016 to 2044 forecast period, London's share of Middlesex's population is forecast to remain relatively stable at 82% to 83%.

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[1] For the purpose of this assignment, Middlesex County includes the City of London.

Figure 6-10
City of London
Population Share of Middlesex County, 1996 to 2041

Source: City of London forecast (2016 - 2041) is derived by Watson & Associates Economists Ltd. Middlesex County forecast (2016 - 2014) is based on Ministry of Finance population projections. Ministry of Finance has an undercount of 3.1% and City of London has an undercount of 2.7%
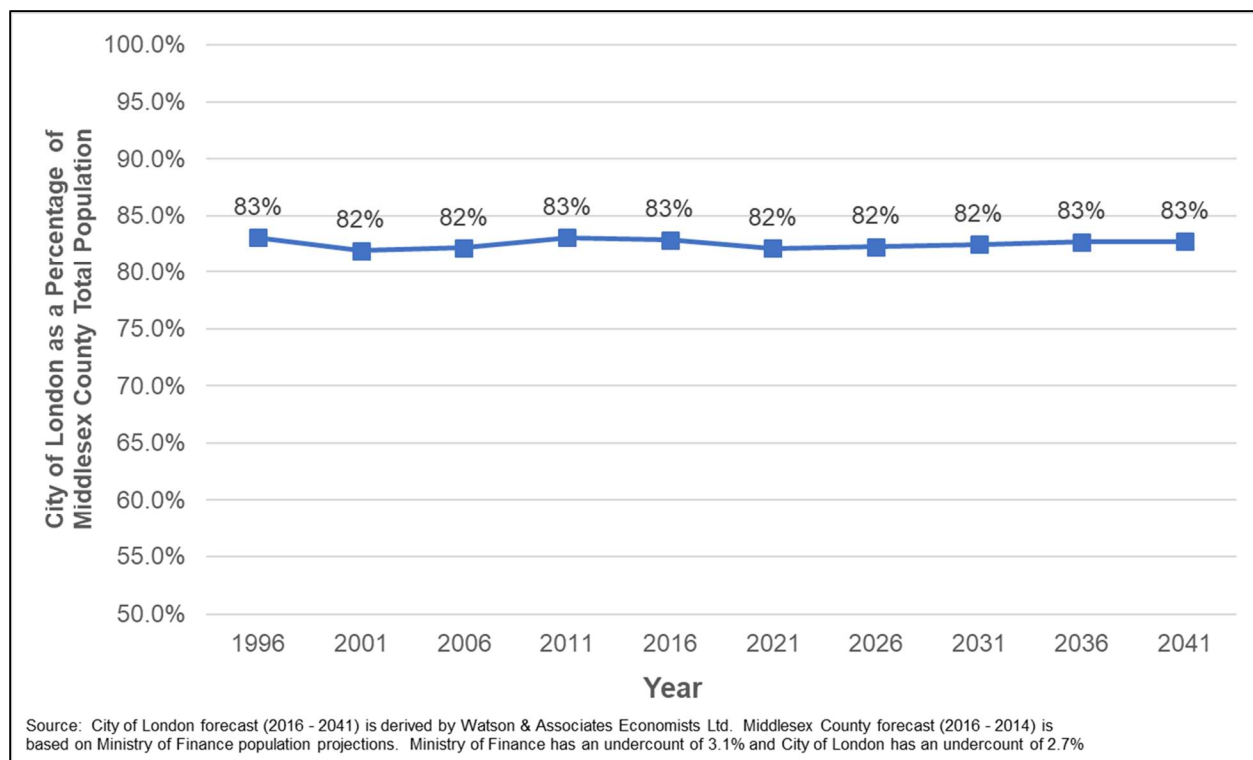
6.7 City of London Forecast Housing Trends, 2016 to 2044

6.7.1 Forecast Household Growth by Age of Household Maintainer

In accordance with the Reference Population Growth Scenario, a total household forecast has been generated using a headship rate forecast, as summarized in Figure 6-11. As previously identified, a headship rate is defined as the number of primary household maintainers or heads of households by major population age group. The headship forecast forms the basis for determining the demand for new households generated from population growth. Dividing total units over population generates the resulting long-term PPU for the City from 2016 to 2044.

Figure 6-11
City of London
Forecast Household Headship Rates, 2016 to 2044

Source: Watson & Associates Economists Ltd. Data derived from Statistics Canada Census Population, 2016.
Population based on Census adjusted for Census undercount of 2.7%.
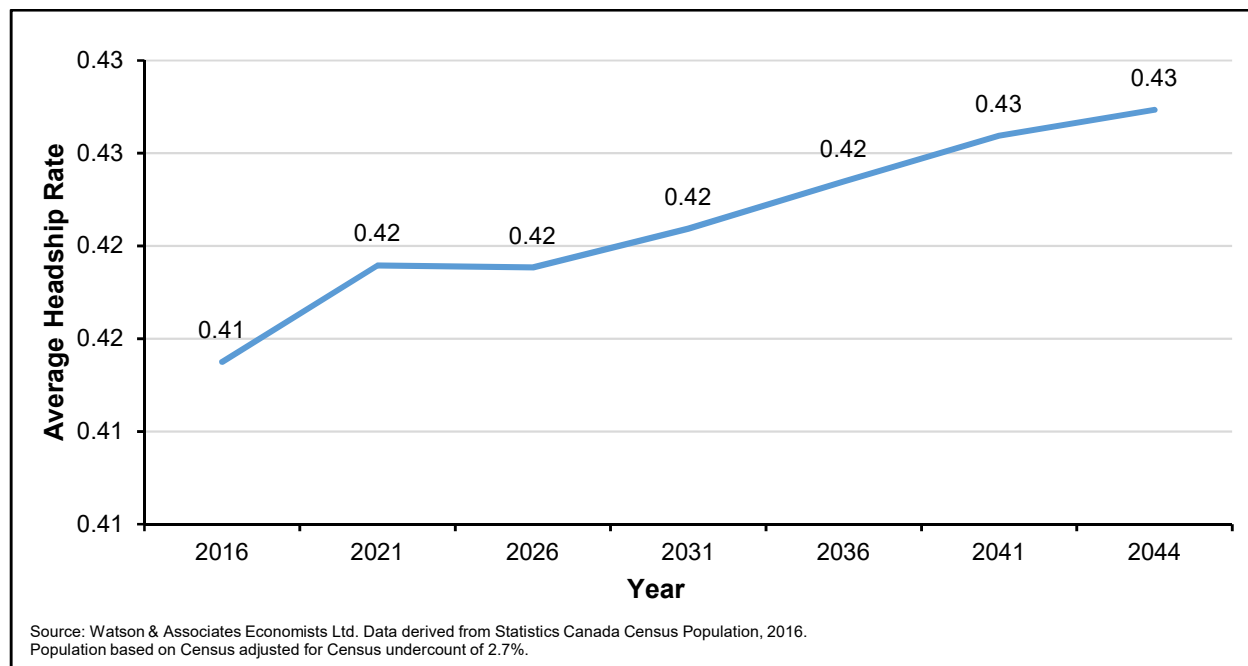
6.6.2 Average Persons Per Housing Unit (PPU)

Figure 6-12 summarizes the PPU forecast for the City of London from 2016 to 2044 in accordance with the headship rate analysis discussed above. For comparative purposes, the 2011 to 2041 PPU forecast for the City of London generated through the 2012 (Altus Group) population and household forecast is also provided. To provide historical context, actual PPU trends between 1991 and 2011 are also provided in accordance with Statistics Canada Census data. Over the forecast period, the City's average PPU is anticipated to steadily decline from 2.42 in 2016 to 2.26 in 2044, largely as a result of the aging of the City's population. As illustrated in Figure 6-8, the City's housing occupancy levels are anticipated to decline at a slightly slower rate by 2031, in comparison to the 2012 (Altus Group) forecast, followed by a more aggressive PPU decline rate post-2031.

Figure 6-12
City of London
Forecast Average Persons Per Housing Unit (PPU), 2006 to 2044

Source: London 2012 Forecast is based on Altus Employment, Population, Housing, and Non-Residential Construction Projection, City of London, 2011 Update
London 2017 Forecast from Watson & Associates Economists Ltd. Note: Includes an undercount of 2.7%
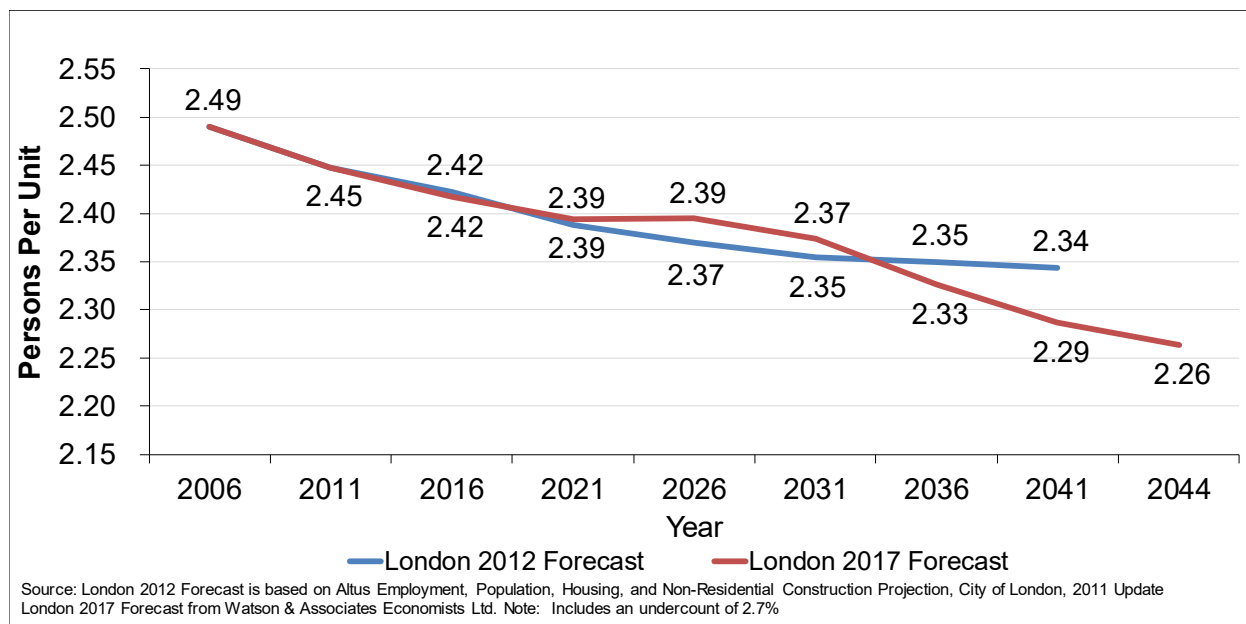
6.7.3 City of London Household Growth Forecast, 2016 to 2044

Figure 6-13 summarizes the City of London total household forecast from 2016 to 2044. For comparative purposes, the 2012 housing forecast (Altus Group) for the City of London is also provided. It is noted that while the 2012 housing forecast is tracking well to 2016 Census actual for total households, low-density development activity has been tracking below the Altus Group projections over the past several years.

By 2041 the City's housing base is forecast to reach 216,600 total occupied units. Comparatively, this represents 5,800 additional households relative to the previous 2012 forecast. The rate of housing growth is forecast to slow during the post-2041 period in accordance with forecast population growth trends during this time period. By 2044, the City is forecast to reach a total of 222,700 occupied households.

Figure 6-14 summarizes the City's housing growth forecast in five-year increments from 2016 to 2044. During the 28-year forecast period, the City is forecast to average just over 2,100 new households per year (refer to Appendix D for additional details).

Figure 6-13
City of London
Forecast Households, 2016 to 2044

Source: London 2012 forecast is based on Altus Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario, 2011 Update. London 2017 forecast derived by Watson & Associates Economists Ltd.
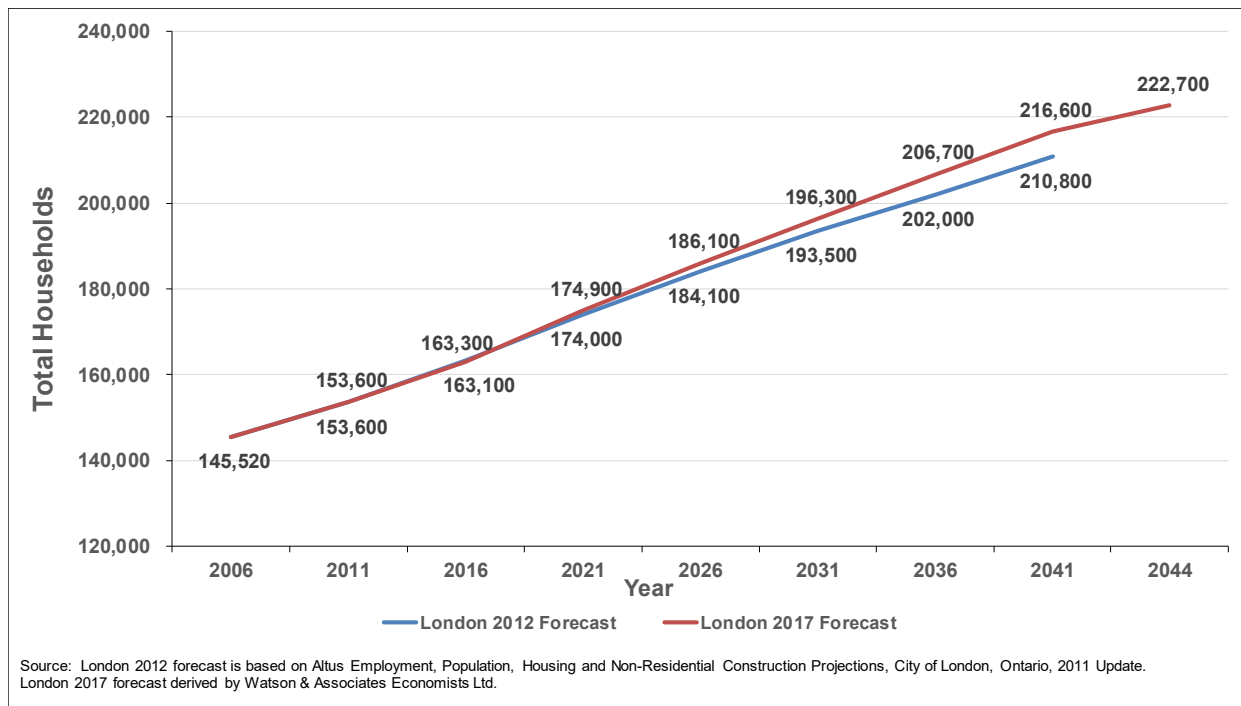
Figure 6-14
City of London
Incremental Household Forecast, 2016 to 2044

Source: Watson & Associates Economists, Ltd.
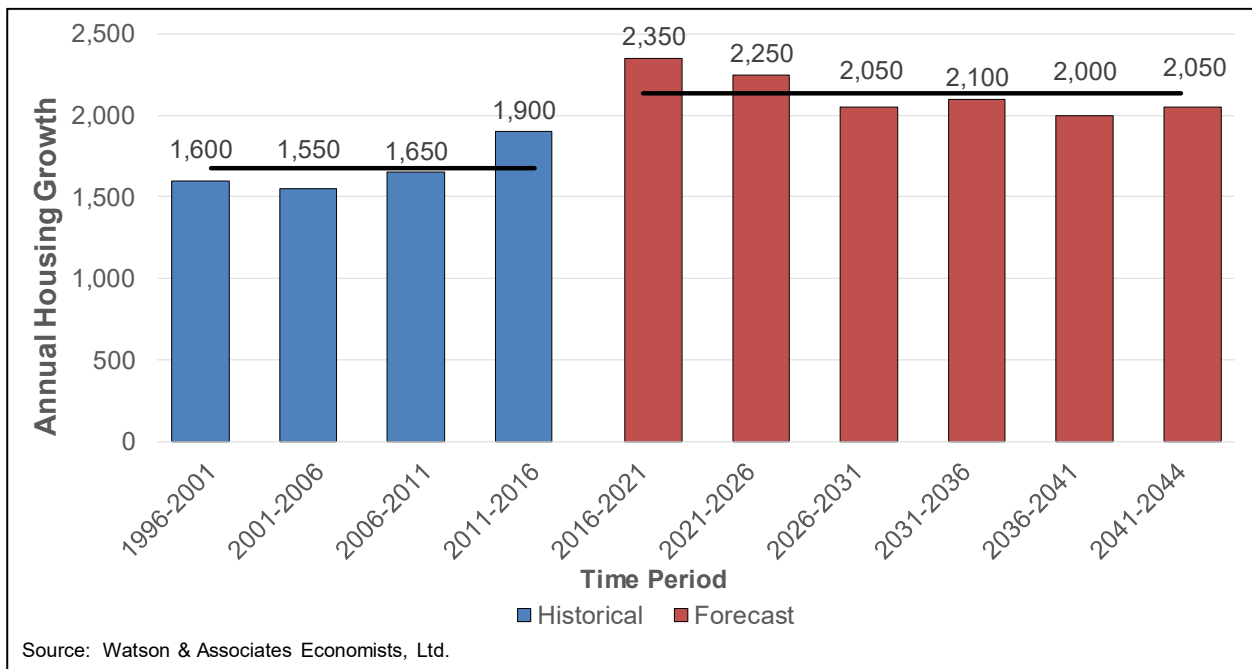
6.7.4 Annual Housing Forecast by Structure Type

Figure 6-15 summarizes the City of London housing forecast by structure type (i.e. low-density, medium-density and high-density) over the 2016 to 2044 forecast period in five-year growth increments.[1] For comparative purposes, historical housing growth by structure type is also provided for the historical period between 1996 and 2016 (refer to Appendix D for additional details). Key observations include:

- New residential development within the City of London will continue to be concentrated in low-density housing forms, largely driven by demand from new families;
- As previously discussed in Chapter 4, housing preferences by structure type are anticipated to continue to gradually shift from low-density to medium and high-density housing forms over the long-term. This shift is anticipated to be driven by the aging of the population, declining housing affordability, the gradual buildout of the City's designated greenfield housing supply, the City transit initiatives and Official Plan (O.P.) policy; and
- Over the 2016 to 2044 projection period, housing demand is forecast to be comprised of 44% low-density housing, 23% medium-density housing and 33% high-density housing.

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[1] The final growth increment (2041 to 2044) represents a three-year increment.

Figure 6-15
City of London
Forecast Households by Structure Type

Source: Watson & Associates Economists Ltd.
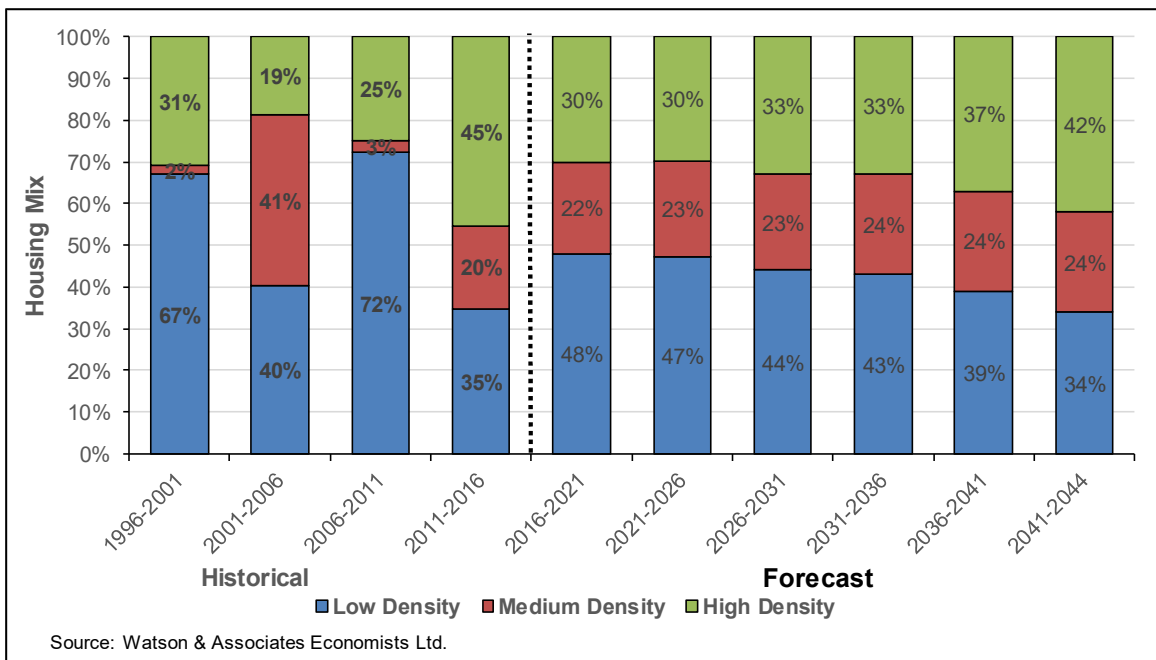
7. City of London Employment and Gross Floor Area Forecast by Major Sector, 2016 to 2044

7.1 Introduction

This Chapter provides an assessment of the long-term employment potential for the City of London to the year 2044 by major employment sector, building on the macro-economic analysis as well as regional/local non-residential development trends previously discussed in Chapters 3 and 4.

7.2 Long-Term Employment Growth Scenarios

Similar to the residential growth forecast, three long-term employment growth scenarios have been developed for the City of London, including a: 1) Low Employment Growth Scenario; 2) Reference Employment Growth Scenario; and 3) High Employment Growth Scenario. Also provided herein is a commentary with respect to key industry sub-sectors which are anticipated to drive market demand for non-residential employment over the long-term.

Low Employment Growth Scenario: The Low Growth Employment Scenario assumes that the City will grow at an average annual growth rate of 0.5% per year and add 1,250 jobs annually.

High Growth Employment Scenario: Under the High Growth Scenario the City's employment base is forecast to grow at an average annual rate of 1.2% per year or 3,090 jobs annually. This represents an average annual growth rate which is slightly higher than what the City has achieved over the past fifteen years (2001-2016 period).[1]

Reference Employment Growth Scenario: The Reference Employment Scenario assumes that the City will grow at an average annual growth rate of 0.9% per year and add 2,130 jobs annually. In accordance with forecast labour force trends by age and future employment growth prospects by major sector, the Reference Employment Growth Scenario represents the preferred growth scenario.

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[1] Over the 2001-2016 period, the City grew at annual employment growth rate of 1.2% and added 2,270 jobs annually.

Figure 7-1
City of London
Employment Growth Projection Scenarios, 2016 to 2044

Source: Watson & Associates Economists Ltd.
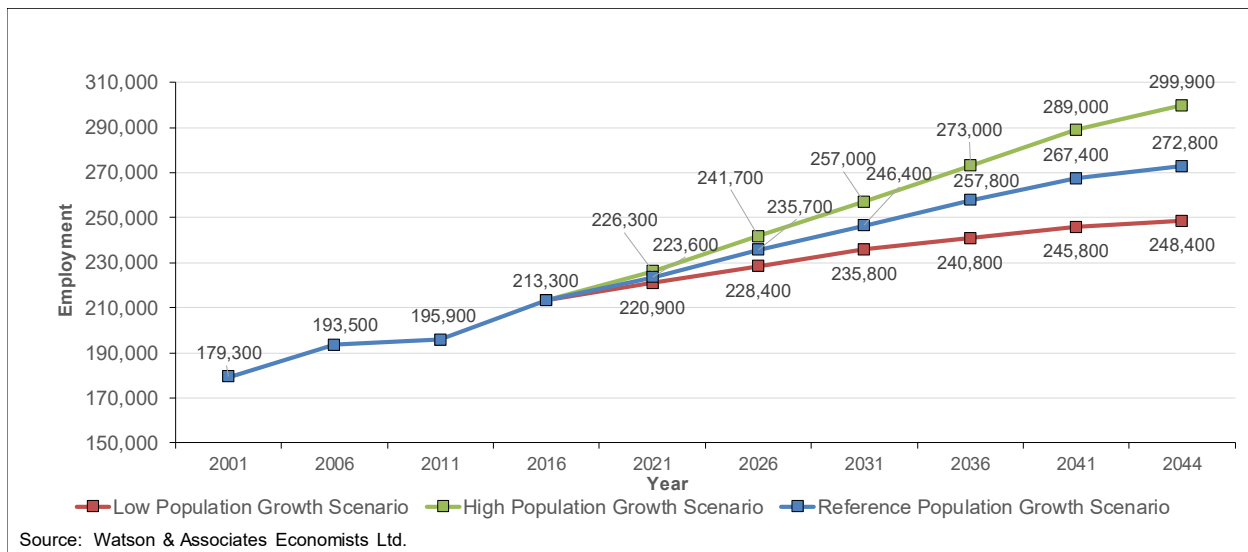
7.3 Forecast Non-Residential Development Trends, 2016 to 2044

7.3.1 Total Employment Growth Forecast

In many respects, London's long-term economic and employment growth potential is largely tied to the success of the broader provincial and national economy as a whole. As previously discussed in Chapter 3, a broad range of economic conditions and development factors are anticipated to influence the competitiveness of the City of London economy and ultimately the future local employment growth over the long term. As summarized in Figure 7-2, these economic and development factors can generally be grouped four broad geographic categories or levels, including: national/provincial, regional, community and site-specific. These factors will not only impact the rate and magnitude of employment growth but they will also influence the form and density of non-residential development and corresponding demand for urban lands in employment and mixed-use commercial areas.

Figure 7-2
Economic and Regional/Local Development Factors Influencing Competitiveness

National/Provincial Level
- Regulatory environment
- Dollar exchange rate
- Corporate taxation
- Political stability
- Geographic Attributes
- Labour costs (wage rates, benefits)

Regional Level
- Local industry clusters
- Access to markets
- Access to Regional labour force pool
- Quality of infrastructure and distribution networks
- Utility costs (electricity, heating, water)

Competitiveness Factors

Community Level
- Locational attributes
- Major infrastructure access (major highways, intermodal facilities, airports)
- Local labour force
- Development opportunities
- Development costs
- Property taxes
- Market rents and availability of building space
- Quality of life
- Local business environment

Site Level
- Availability of developable industrial and commercial lands
- Investment readiness of Employment Areas
- Quality and suitability of building space
- Access/circulation
- Development standard

The results of the Reference Employment Growth Scenario are summarized below in Figures 7-3 and 7-4, with additional details provided in Appendix E. Key observations include:

- Total employment growth within the City of London is tracking well to the 2012 employment forecast (Altus Group) forecast. Currently, the City's employment base is estimated at 213,300 which is approximately 10,100 above the City's 2012 employment forecast for the year 2016;

- By 2031, it is anticipated that the City of London will reach an employment base of 246,400. This represents an employment increase of 33,100 from 2016 to 2031 or an annual employment growth rate of 1.0%. Comparatively, the updated employment forecast for the City of London is approximately 17,100 higher than the 2012 employment forecast for 2031;

- By 2041, the City's employment base is forecast to grow to 267,400, which represents a total employment increase of 54,100 jobs between 2016 and 2041;

- During the latter portion of the employment forecast period, the annual employment growth rate is forecast to slow, largely as a result of the aging of the regional population and labour force base; and

- Over the 2016 to 2044 forecast period, the City's employment activity rate (ratio of jobs to population) is forecast to remain relatively steady at 56%.

Figure 7-3
City of London
Reference Employment Forecast, 2016 to 2044

Notes: 2017 Forecast is Reference Employment Growth Scenario. No Fixed Place of Work employment is included in figure.
Source: 2017 Forecast is a forecast by Watson & Associates Economists Ltd. 2012 Forecast is derived from the City of London, Employment, Population, Housing and Non-Residential Projections prepared by Altus Group, June 2012.
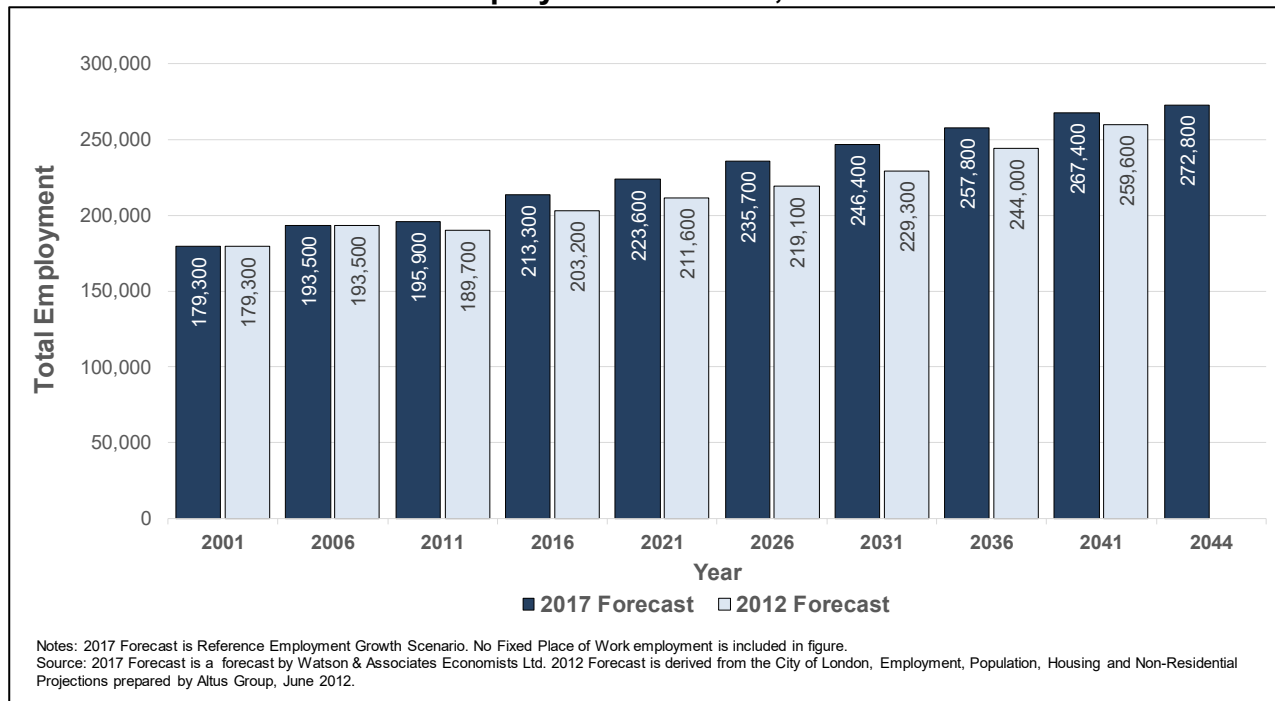
Figure 7-4
City of London
Reference Employment Growth Scenario Forecast
Employment Growth by Major Sector, 2001 to 2044

Note: Reference Employment Growth Scenario.
Source: Statistics Canada, 2001, 2006 and 2011 Census. 2016 to 2044 is a forecast by Watson & Associates Economists Ltd.
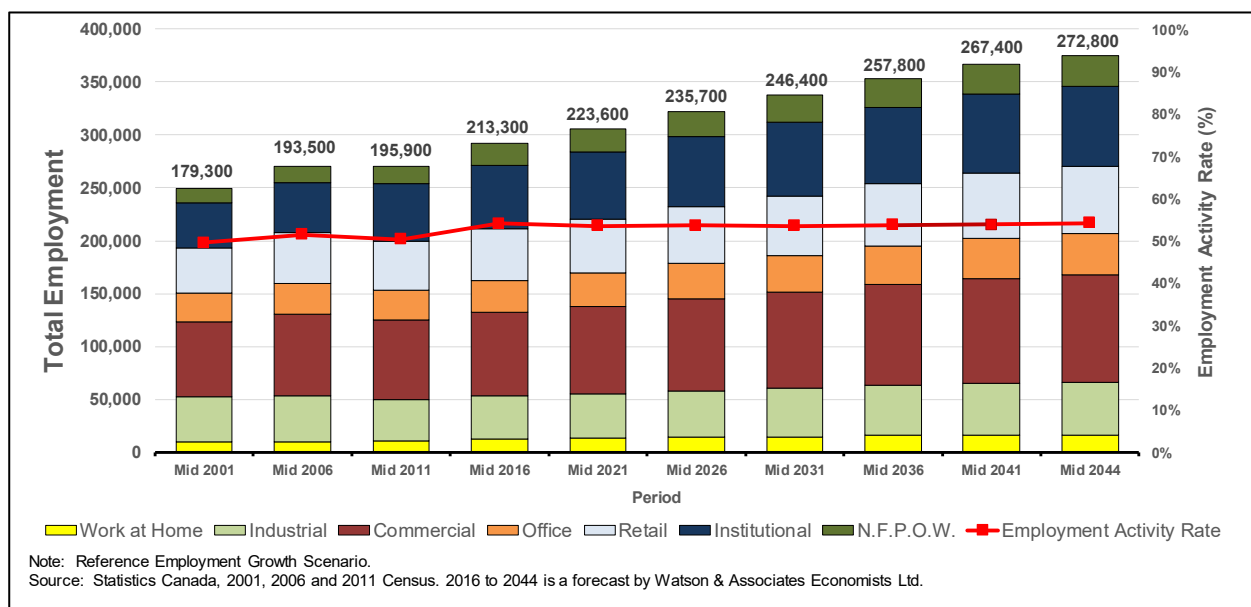
7.3.2 Forecast Employment Growth by Major Employment Sector/Category

Figures 7-5a and 7-5b summaries the employment forecast by sector in five-year increments over the 2016 to 2041 period (refer to Appendix E for additional details). Key observations include:

- Employment growth is expected across a wide range of sectors driven by continued diversity of the regional and local economic base and steady local population growth. Over the long term, all major employment sectors, apart from the primary sector, are anticipated to experience employment growth.
- The amount of incremental employment growth in the City's industrial sector is forecast to steadily increase over the 2016 to 2044 planning horizon, largely driven by a continued gradual recovery in the regional export-based economy, and steady market demand for medium and prestige industrial uses on employment lands. Industrial employment growth is anticipated in sectors related to small/medium-scale manufacturing (primarily firms which are technology intensive), construction, wholesale trade, and transportation and warehousing. Industrial employment growth is forecast to increase by approximately 8,700 jobs over the 2016 to 2044 period, accounting for 17% of total employment growth.
- Commercial/population-related employment (which includes the office and retail sectors) represents the City's largest major sector with respect to total employment growth. This sector is largely driven by local and regional population growth. Commercial employment growth is forecast to increase by approximately 23,200 jobs over the 2016 to 2044 period, accounting for 39% of total employment growth.
- The City's employment base is anticipated to steadily increase in the institutional sector, largely driven by the need for increased health services, education and other institutional facilities (i.e. cultural, religious, schools) associated with steady population growth. Institutional employment growth is forecast to increase by approximately 16,000 jobs over the 2016 to 2044 period, accounting for 27% of total employment growth. The City is expected to see an increase in seniors' health facilities/services, including retirement homes and assisted living facilities, as well as other institutional-related development due to a growing, but aging population base.
- Work at home employment in the City of London is expected to steadily increase over the long term, driven by forecast growth in the knowledge-based and creative economy. Future opportunities for work at home employment are

anticipated to be facilitated by continued advancements in information and telecommunications technology.

- Employment with No Fixed Place of Work (NFPOW) is forecast to steadily increase within the City over the long term, largely driven by steady employment growth in the construction and transportation and warehousing sectors.

Figure 7-5a
City of London
Reference Employment Growth Scenario Forecast
Annual Incremental Employment Growth by Major Sector, 2001 to 2044

Note: Reference Employment Growth Scenario.
Source: Statistics Canada, 2001, 2006 and 2011 Census. 2016 to 2044 is a forecast by Watson & Associates Economists Ltd.
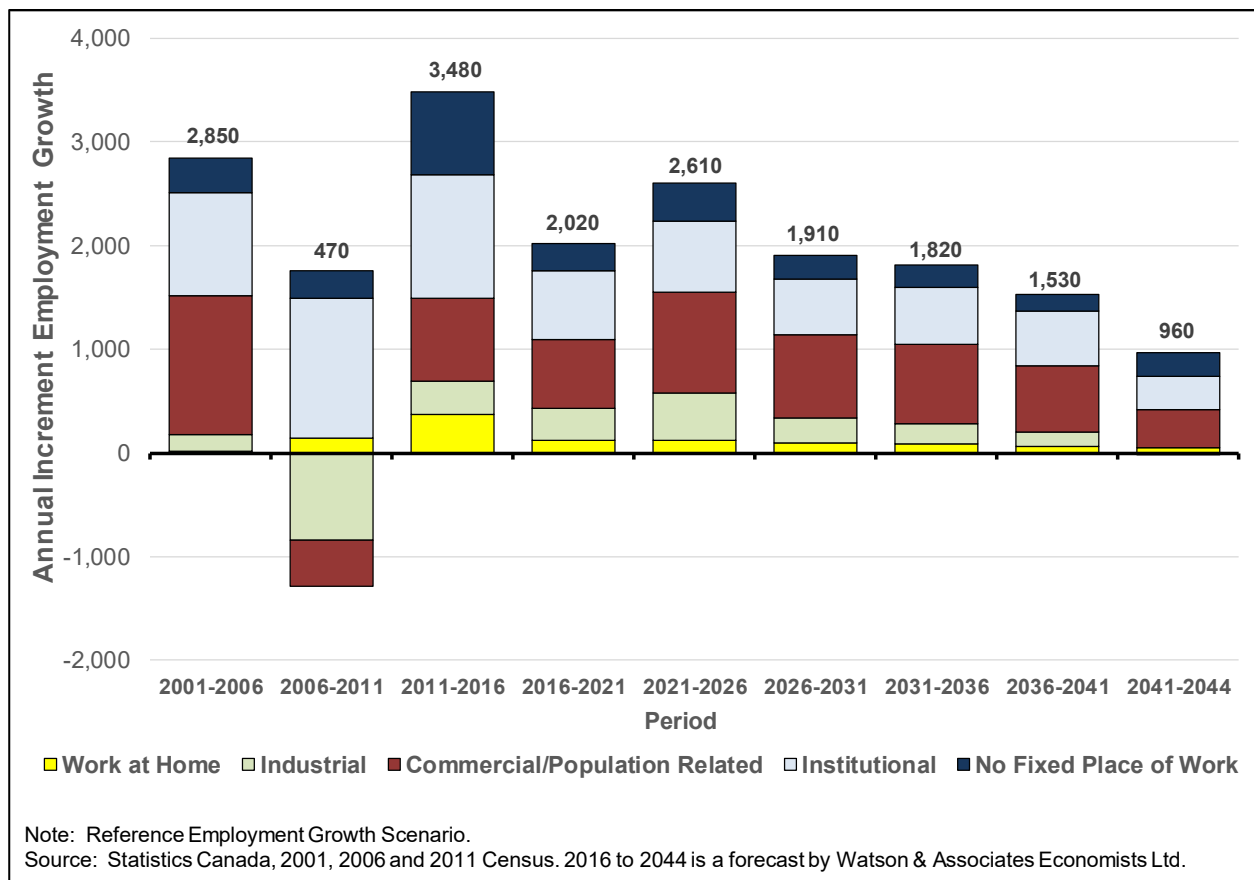
Figure 7-5b
City of London
Reference Employment Growth Scenario Forecast
Shares of Annual Incremental Employment Growth by Major Sector, 2001 to 2044

Employment Sector	2011	2021	2031	2041	2044
Work at Home	5%	6%	6%	6%	6%
Industrial	20%	19%	19%	18%	18%
Commercial/ Population Related	38%	37%	37%	37%	37%
Institutional	27%	28%	28%	28%	28%
No Fixed Place of Work	9%	10%	10%	10%	11%

Source: Watson & Associates Economists Ltd.

7.3   Key Anticipated Employment Growth Sectors in the City of London

The following observations are provided with respect to employment growth within the City of by sub-sector.

7.3.1 Planning for Employment in Industrial Sectors

Manufacturing

- As previously mentioned, the manufacturing sector remains vitally important to the provincial and regional economies with respect to job growth and economic output. While growth in traditional manufacturing sectors has declined in recent years, there is still demand for these activities throughout the broader Ontario economy. Canada and the United States have experienced some reshoring[1] of manufacturing employment over the past couple of years due to rising shipping and labour costs in China and advanced manufacturing processes requiring skilled labour;[2] however, this trend has been more pronounced in the United States with lower energy costs and access to a larger consumer market.[3]

- Looking forward, there will continue to be a manufacturing focus in Ontario and the City of London; however, industrial processes have become more specialized, capital/technology intensive and automated. This means that as the regional manufacturing sector continues to recover, economic output will

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[1] Reshoring is reintroducing domestic manufacturing to a country. It is the reverse process of offshoring.

2 The Economist, A growing number of American companies are moving their manufacturing back to the United States, January 19, 2013.

3 KPMG, KPMG's Canadian Manufacturing Outlook Report, 2014.

gradually increase; however, modest employment growth is anticipated in the manufacturing sector.

- As previously mentioned in Chapter 3, the manufacturing sector in the City of London as a whole has experienced a decline in employment over the past decade, similar to the Province. The loss in manufacturing in the City of London is largely attributed to the auto sector[1] which lost approximately 1,300 jobs over the past decade. Over the past three years there has been some growth in other manufacturing subsectors in the City of London, in particular the metal manufacturing[2] and machinery manufacturing[3] sectors which has experienced growth at an annual rate of 6.7% and 4.0% respectively, over the past decade.[4]
- Compared to the Province as a whole, the City of London has experienced growth in manufacturing subsectors that involved more advanced technologies, and processes such as machinery manufacturing have experienced steady growth over the past decade.[5,6]

Goods Movement (Transportation, Warehousing and Logistics)

- The Goods Movement sector (i.e. transportation/warehousing and wholesale trade) is an integral part of the southern Ontario and regional economy. The Goods Movement sector represents approximately 9% of the current employment base in the City of London.[7]
- Employment lands within the City of London offer strong access and connectivity via Highway 401 and Highway 402 to facilitate trade regionally and relative to other southwestern Ontario Employment markets, the City of London offers good access to the GGH and to the U.S. market. The City of London is within

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1 Includes motor vehicle manufacturing (NAICS 3361) and motor vehicle parts manufacturing (NAICS 3363). Based on data from OMFRA EMSI Analyst Q4 2016 dataset, 2016.

2 Includes Non-ferrous metal (except aluminum) production and processing (NAICS 3314) and Other fabricated metal product manufacturing (NAICS 3329). Based on data from OMFRA EMSI Analyst Q4 2016 dataset, 2016.

3 Includes Machine shops, turned product, and screw, nut and bolt manufacturing (NAICS 3327) and Commercial and service industry machinery manufacturing (NAICS 3333). Based on data from OMFRA EMSI Analyst Q4 2016 dataset, 2016.

4 Based on growth over the 1996 to 2015 period. OMFRA EMSI Analyst Q4 2016 dataset, 2016.

5 This subsector comprises establishments primarily engaged in manufacturing machinery designed for use in specific manufacturing industries.

6 Based on growth over the 2006 to 2016 period. OMFRA EMSI Analyst Q4 2016 dataset, 2016.

7 Based on data from OMFRA EMSI Analyst Q1 2016 dataset, 2016.

approximately a two-hour drive of Canada's busiest border crossings to the United States, including those in the Niagara Region (Niagara Falls, Fort Erie and Queenston) and the City of Windsor. The Sarnia-Port Huron border crossing (Blue Water Bridge) is within an hour drive from the City of London.

- The Goods Movement sector is accommodated in a range of industrial building typologies reflecting the diverse subsectors that comprise the sector. This includes distribution centres, warehouses, fulfillment centres, delivery depots, logistics hubs, corporate office buildings of major logistics companies, trucking terminals, multi-tenant warehouses and terminals, cold storage buildings and transportation yards.

- Increased outsourcing of manufacturing production to emerging global markets continues to drive the need for new consolidated, land-extensive warehousing facilities to store and manage the distribution of goods produced both locally and imported from abroad. Demand in the Goods Movement sector is anticipated to continue across the City of London particularly in locations with available employment lands with strong connectivity to regional transportation infrastructure (Highway 401 access).

- Traditionally, the Goods Movement Sector has been heavily concentrated around large, mature municipalities throughout the GGH. Notwithstanding this trend, rising industrial land prices and diminishing employment land supply within Central Ontario continues to shift development pressures within the Goods Movement Sector to other competitively priced industrial markets across Southern Ontario. Demand tends to be greatest for mid- to large-scale, land-extensive industrial uses which offer ample market choice and supporting regional infrastructure to accommodate near-term demand and future expansion requirements.

- Several factors have been changing the nature of the Goods Movement industry over recent years, including just-in-time manufacturing, e-commerce and globalization. It is expected that the industry will continue to evolve and, in the near-term, the following trends are expected in Canada:
    o Just-in-time manufacturing will continue to be the industry norm, placing increasing emphasis on more frequent and smaller deliveries by truck transport;
    o Automation of distribution centres allows for more vertical storage; however, the need for numerous loading bays will dictate land requirements and the industry trend is for more and more bays at facilities;
    o Larger facilities are a continuing trend versus smaller properties; typically, the larger the property, the lower the average employment density;

- o Locations close to multi-modal facilities continue to be very attractive with access to rail – this is generating increased demand for larger-scale logistics hubs. Intermodal hubs typically require approximately 200 to 300 ha for intermodal infrastructure and loading/unloading areas. Express terminals are smaller (<100 ha);
- o Increasing growth in e-commerce is anticipated to have a significant impact on employment growth and land demand related to the logistics sector. E-commerce sales in Canada have grown at a rate that is five times the pace of overall growth in retail trade. Online sales account for 6% of total Canadian retail spending. By comparison, U.S. online sales account for 9% of total spending.[1] Delivery expectations within this sector are increasing on an annual basis. As delivery times decrease, it is anticipated that demand for regional fulfilment centres will increase; and
- o Reverse logistics – approximately 25-30% of online merchandise is returned, which is generating increasing needs for dedicated return centres.

Construction

- The City has a relatively high concentration of employees in the construction sector. Over the forecast period, a portion of industrial employment growth is anticipated to be generated from construction employment driven by both residential and non-residential development activity within the City and surrounding area. This includes employment associated with construction of buildings, heavy and civil engineering construction and speciality trade contractors.
- A large component of the construction is associated with employees that have no usual place of work (No Fixed Place of Work). Construction subsectors involved in large-scale construction projects typically require land to store equipment and machinery in proximity to major roads and highways. As such, employment densities within this sector tend to be low. More specialized construction firms may require offices and facilities. Employment in this sector may include a wide-range of jobs types, including laborers, trades persons and engineers.

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[1] Purolator Logistics. Adapting your Canadian Supply Chain for E-commerce Efficiency. 2015.

7.3.2 Planning for the Knowledge-Based Economy

Office Sector

* The City of London has a healthy and sizeable office market, comprising nearly 5.8 million sq.ft. of office GFA. Over three-quarters (76%) of the office GFA is located in the downtown core of the City.[1] It is estimated that a sizeable portion of the office space in the downtown core is comprised of insurance and financial users (15% to 20% of the downtown office GFA).[2] Other notable office clusters include the University of Western Ontario Research Park which continues to attract office development related to knowledge-based sectors.
* As previously discussed, Ontario and the London CMA economies are transitioning from goods to services production.
* Looking forward over the next several decades, employment growth within the City's Employment and Commercial Areas will ultimately be driven by demand from a broad range of knowledge-based employment sectors. Reflective of employment growth trends in the broader regional economy, the City of London is anticipated to be particularly attractive, over the long term, to knowledge-intensive and creative forms of economic activity such as professional, technical and scientific services, information and cultural services, and real estate and insurance.
* These sectors are typically accommodated in standalone low-rise office, flex office and multi-tenant commercial/industrial space.

7.3.3 Planning for Retail and Institutional Sectors

Retail Sector

* The City's retail base is oriented towards the local and regional population. Over the past few years, retail development in the City has been very active with both local and regional tenants opening new locations or expanding its existing operations. The retail corridor along Wonderland Road South has been particularly active given its close proximity to the 401 Highway and access to surrounding communities outside the City of London.[3] It is anticipated that the City of London will continue to grow as a regional retail hub attracting retailers who seek a location that has the potential to capture a large share of trade from

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[1] CBRE Marketview London Office Report, Q1 2017 prepared by CBRE.
[2] Colliers London Office Report, Q1 2017 prepared by Colliers International.
[3] CBRE Marketview, London Retail, Q1 2017 prepared by CBRE.

the southwestern Ontario market. Further growth in the local population base will facilitate the need for additional local serving retail space (e.g. grocery stores, pharmacy and health care stores, personal services, etc.).

Institutional Sector

- Employment in the institutional sector comprises a large share (28%) of the City's employment base. The City's health care facilities serve a large regional population base of Southwestern Ontario, while the City's post-secondary institutions serve the population base of southwestern Ontario and beyond. It is anticipated that the institutional sector will remain strong over the forecast period not only attracting additional jobs in that sector, but also attracting jobs for the broader knowledge-based economy.
- The City is expected to see an increase in seniors' health facilities/services, including retirement homes and assisted living facilities due to a growing population base.

7.4   Gross Floor Area Forecast by Major Sector

Figure 7-6 summarizes the average floor space per worker (FSW) assumed by major employment sector over the forecast period. Figure 7-8 summarizes forecast growth in non-residential space by major sector to 2044 (refer to Appendix E for additional details). Total non-residential space needs were developed by multiplying total employment by average assumptions by major sector. FSW assumptions consider forecast sub-sectors anticipated to drive employment growth within each of the major employment categories, as well as recent non-residential density trends observed across London and Ontario.

Key observations include:

- The employment forecast assumes that employment growth will be accommodated within new construction GFA space (new buildings and expansions). As summarized in Figure 7-7, recent vacancy rates trends suggest that rates have stabilized, in particular the industrial market which over the past few years has absorbed a large portion of the vacant GFA space since 2010. Industrial vacancy rates have fallen from a high of 11.5% in 2010 to 5.9% since 2016;
- It is expected that the commercial industry will experience steady growth over the forecast period with an annual average of 252,400 sq.ft. of commercial development annually;

- Institutional sector will experience strong growth, particularly in the short to medium term of the forecast period with an annual average of 400,400 sq.ft. of development annually; and
- The industrial sector is forecast to experience steady GFA growth averaging approximately 310,400 sq.st. per year.

Figure 7-6
City of London
Gross Floor Area Forecast Per Worker (FSW) Assumptions

Sector	Sq.ft. Per Worker
Industrial	1,000
Commercial	425
Institutional	700

Source: Watson & Associates Economists Ltd.

Figure 7-7
City of London
Industrial Vacancy Rates, 2010 to 2017

Source: Derived from CBRE Canada, Industrial MarketView and CBRE MarketView London (2010-2017).
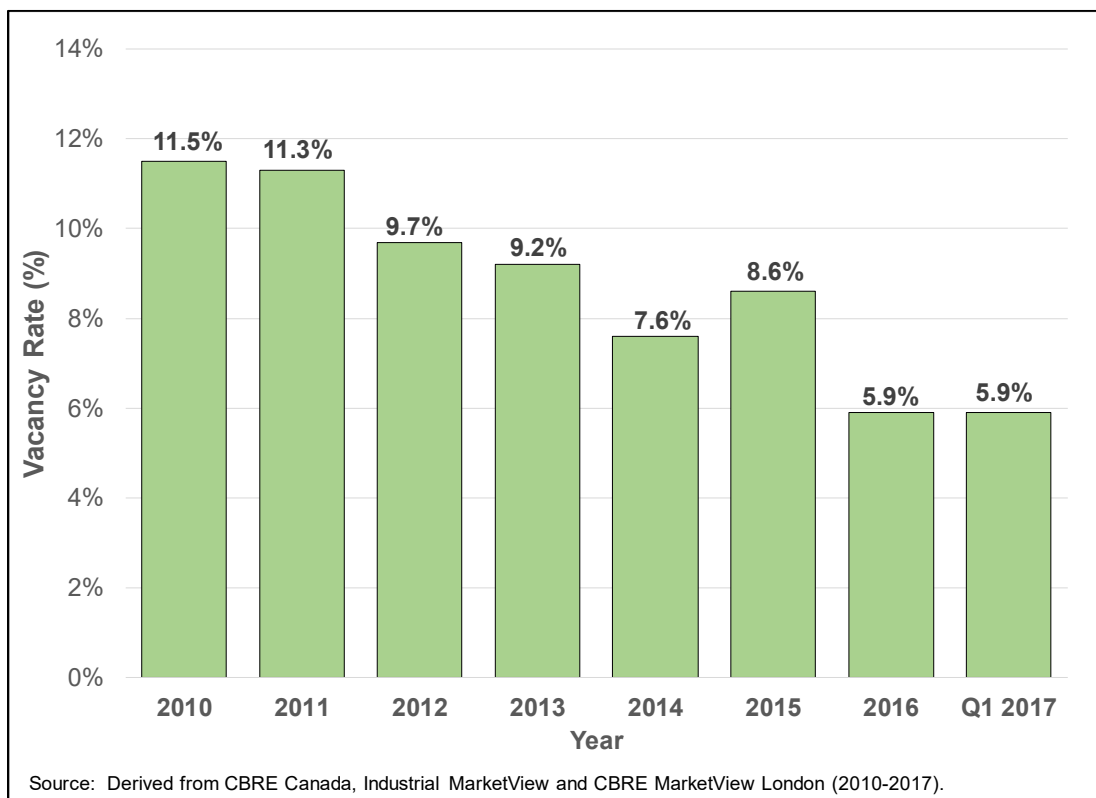
Figure 7-8
City of London
Annual Non-Residential Gross Floor Area Forecast
by Major Sector, 2016 to 2044

Note: Based on Reference Growth Scenario.
Source: Watson & Associates Economists Ltd.
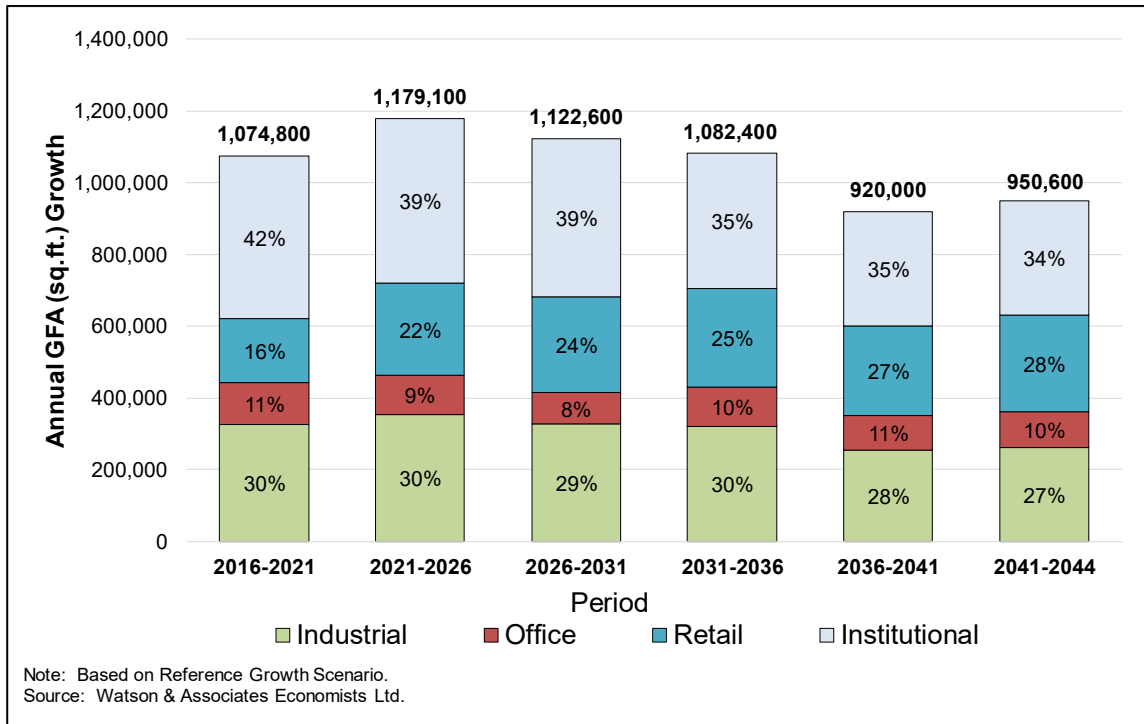
8. Conclusions

Future population, housing and employment growth within City of London is dependent in large measure by the following:

- The success of the broader provincial economy in attracting new investment and retaining existing business;
- The growth and competitiveness of the regional export-based economy (i.e. London CMA) and surrounding primary and secondary commuter-shed;
- The ability of the City to position itself as a hub for innovation to capitalize on the human capital that currently exists within the region while encouraging ongoing entrepreneurship, small business development and investment retention;
- The City's attractiveness to families, which are drawn to the City in search of competitively priced, ground-oriented housing within proximity to local and regional employment markets;
- The City's attractiveness to the 55+ age group as a retirement/future retirement destination; and
- The timing of planned major infrastructure improvements/expansions.

Each of the above factors have been examined in assessing long-term population, household and employment growth for the City of London to arrive at the City's preferred Growth Scenario. The following provides a summary of the key findings provided in this report with respect to forecast long-term population, housing, employment and non-residential space needs, for the City of London.

Population and Housing Forecast

- Under the Reference Population Growth Scenario, the City of London is forecast to reach a population of approximately 465,900 by 2031.[1] By 2041, the City's population is forecast to grow to 495,200 and ultimately 504,000 by 2044.[1] This represents total population increase of 109,700 between 2016 and 2044, and an annual population growth rate of 0.9%.
- Comparatively, the population for the Province as a whole is forecast to increase at an annual rate of 1.0% between 2016 and 2041.
- By 2044, the City's housing base is forecast to reach 222,700 total occupied units.

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[1] Population forecast includes the net Census undercount, which is estimated at 2.7%.

- New residential development within the City of London will continue to be concentrated in ground-oriented housing forms (i.e. single-detached, semi-detached and townhomes), largely driven by demand from new families; and
- While ground-oriented households are forecast to comprise approximately 65% of forecast households, housing preferences are anticipated to continue to gradually shift towards high-density housing forms over the long-term forecast period.

Employment and Non-Residential Space Needs

- Under the Reference Employment Growth Scenario, the City of London employment base is forecast to increase from 213,300 in 2016 to 272,800 in 2044. This represents a total employment increase of 59,500, or 0.9% per year.
- The City's industrial employment sector is forecast to experience moderate employment growth over the forecast period increasing by approximately 8,700, or 17% of total employment growth.
- Commercial and institutional employment represent to largest employment growth sectors for the City. Over the 2016 to 2044 forecast period, these employment sectors are forecast to collectively increase by 39,200, which represents 76% of the City-wide total employment forecast.
- Work at home and no fixed place of work employment represent the remaining 19% of forecast employment growth for the City, with a forecast employment increase of 11,600 between 2016 and 2044.
- Long-term non-residential space needs have been developed by multiplying forecast employment growth by average floor space per worker (FSW) assumption for major employment sector (i.e. ICI).
- Over the 2016 to 2044 forecast period, the City of London is forecast to add 29.8 million sq.ft. of non-residential gross floor area (GFA) to it non-residential building space inventory. The non-residential building space forecast is comprised of 29% industrial and 71% commercial/institutional development.

Appendix A – Housing Headship Rates

Figure A-1
City of London
Historical Household Headship Rates, 1991 - 2016

Year	Total	Under 25	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
1991	0.42562	0.07450	0.47260	0.53212	0.54680	0.56125	1.00178	0.73579
1996	0.38362	0.06391	0.48334	0.54470	0.57197	0.57983	0.62799	0.63662
2001	0.42608	0.07314	0.45468	0.53153	0.58434	0.59976	0.63099	0.66875
2006	0.42933	0.07248	0.44189	0.53369	0.57988	0.59213	0.62686	0.64524
2011	0.43557	0.07269	0.44252	0.53065	0.57739	0.59950	0.62994	0.62037
2016	0.44345	0.07348	0.43288	0.52783	0.58372	0.60358	0.62420	0.62838

Population based on Census adjusted for Census undercount.

Source; Statistics Canada Census Population, 1991-2016.

Appendix B – City of London Housing Propensity by Household Maintainer, Structure Type and Age Group, 2006, 2011, 2016

Figure B-1
Housing Preference by Structure Type by Population Age
2006 Census for City of London

Source: Statistics Canada Census 2006 ■ Low Density ■ Medium Density □ High Density
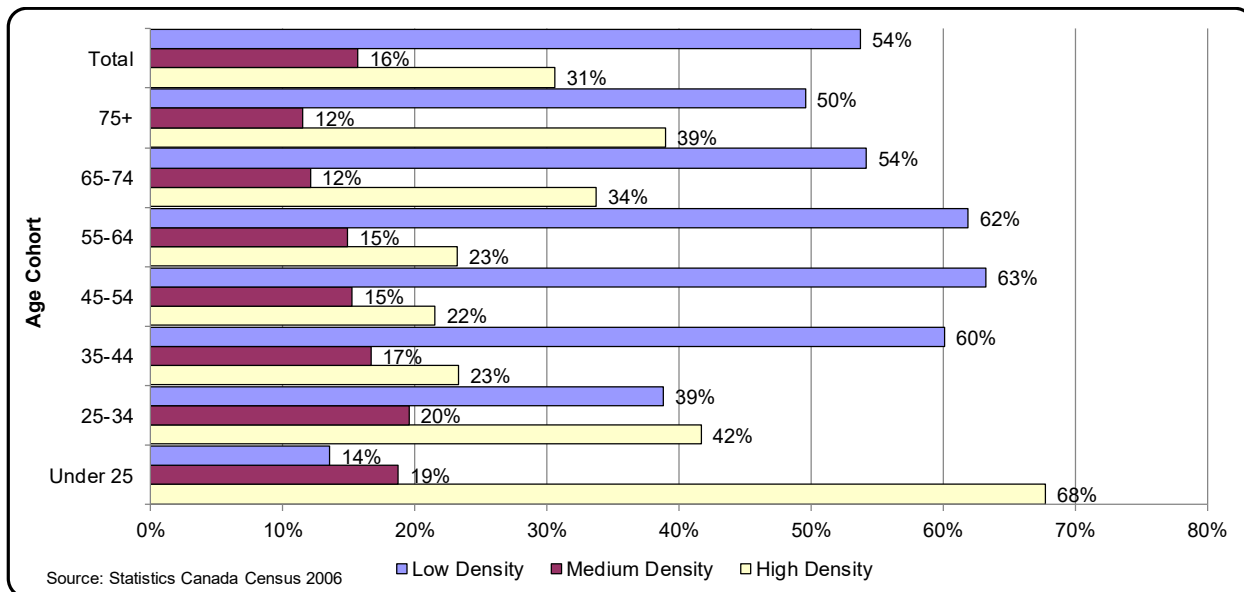
Figure B-2
Housing Preference by Structure Type by Population Age
2011 Census for City of London

Source: Statistics Canada Census 2011 ■ Low Density ■ Medium Density □ High Density
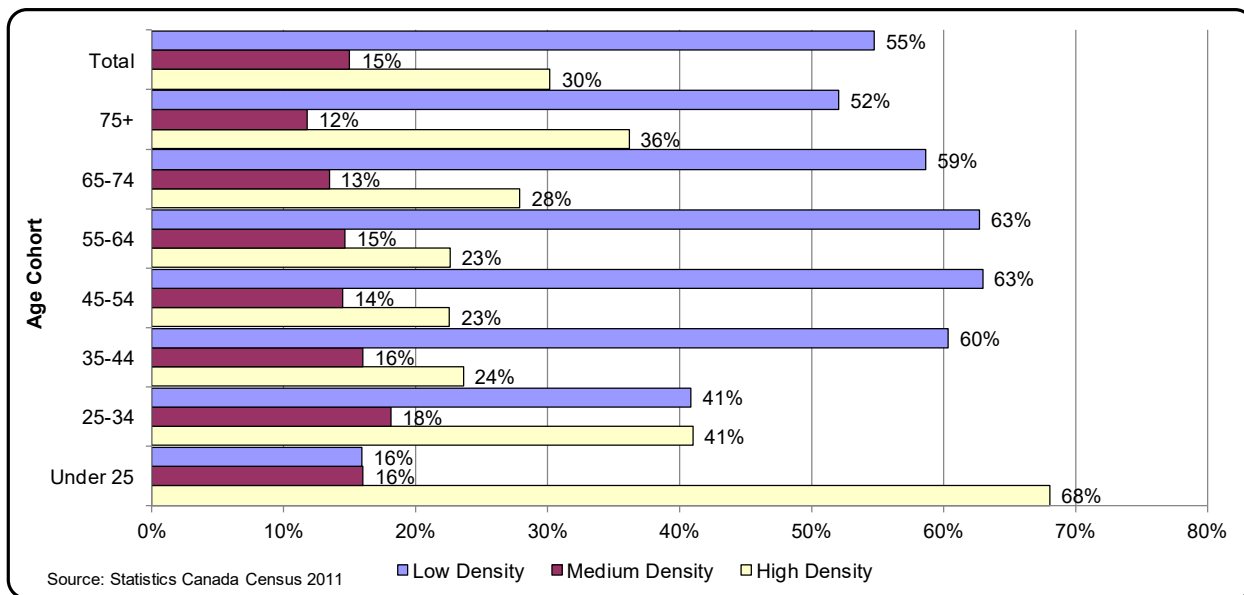
Figure B-3
Housing Preference by Structure Type by Population Age
2016 Census for City of London

Source: Statistics Canada Census 2016

■ Low Density ■ Medium Density □ High Density
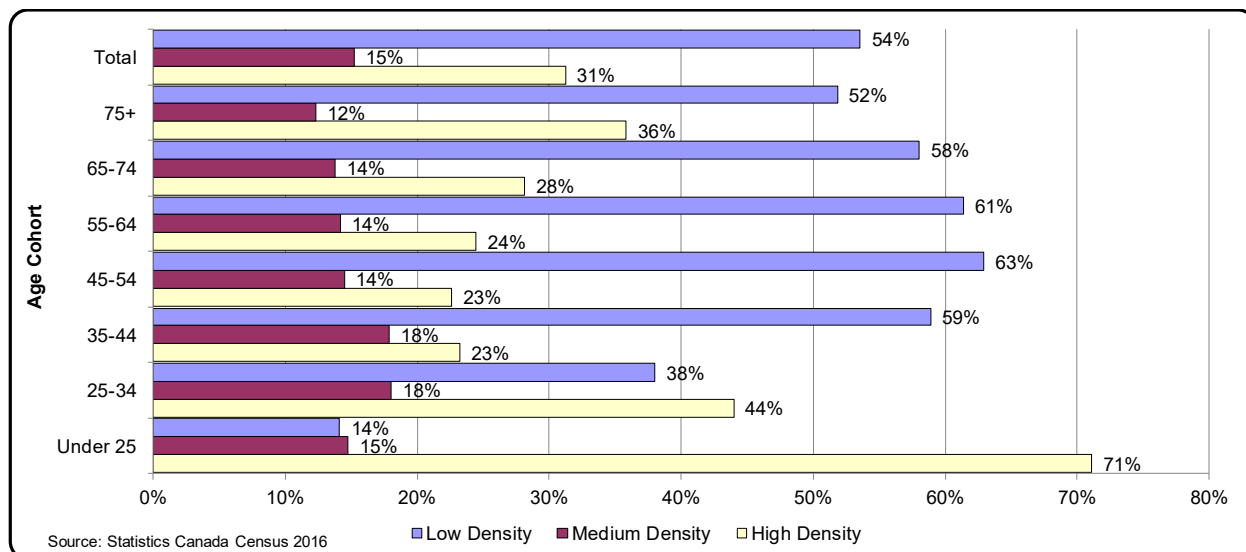
Figure B-4
City of London
2016 Housing Preference by Type and Age Group

Age Cohort	Low Density [1]		Medium Density [2]		High Density [3]		Total
Under 25	1,195	14%	1,250	15%	6,015	71%	8,460
25-34	9,975	38%	4,735	18%	11,540	44%	26,250
35-44	15,295	59%	4,650	18%	6,035	23%	25,980
45-54	19,890	63%	4,575	14%	7,150	23%	31,615
55-64	18,920	61%	4,365	14%	7,545	24%	30,830
65-74	12,770	58%	3,035	14%	6,190	28%	21,995
75+	9,325	52%	2,215	12%	6,450	36%	17,990
Total Households	**87,405**	**54%**	**24,820**	**15%**	**50,915**	**31%**	**163,140**

Figure B-5
City of London
Estimated 2031 Unit Mix Based on 2016 Housing Preference by Structure Type and Age Group

Age Cohort	Low Density [1]		Medium Density [2]		High Density [3]		Total
Under 25	1,356	14%	1,418	15%	6,825	71%	9,600
25-34	10,651	38%	5,056	18%	12,322	44%	28,029
35-44	21,089	59%	6,412	18%	8,321	23%	35,822
45-54	20,442	63%	4,702	14%	7,348	23%	32,492
55-64	17,982	61%	4,149	14%	7,171	24%	29,302
65-74	17,711	58%	4,209	14%	8,585	28%	30,505
75+	15,828	52%	3,760	12%	10,948	36%	30,535
Total Households	**105,058**	**54%**	**29,705**	**15%**	**61,521**	**31%**	**196,284**

1. Represents single and semi-detached units
2. Represents townhomes and apartments in duplexes
3. Represents apartments 5+ storeys

B-4

Figure B-6
City of London
Estimated 2041 Unit Mix Based on 2011 Housing Preference by Structure Type and Age Group

Age Cohort	Low Density [1]		Medium Density [2]		High Density [3]		Total
Under 25	1,350	14%	1,412	15%	6,793	71%	9,554
25-34	11,485	38%	5,452	18%	13,286	44%	30,223
35-44	20,624	59%	6,270	18%	8,138	23%	35,032
45-54	25,205	63%	5,798	14%	9,061	23%	40,064
55-64	20,215	61%	4,664	14%	8,061	24%	32,939
65-74	15,885	58%	3,775	14%	7,700	28%	27,360
75+	21,454	52%	5,096	12%	14,840	36%	41,390
Total Households	**116,217**	**54%**	**32,466**	**15%**	**67,879**	**31%**	**216,562**

1. Represents single and semi-detached units

2. Represents townhomes and apartments in duplexes

3. Represents apartments 5+ storeys

Appendix C – City of London Labour Force Forecast

Figure C-1
City of London
Labour Force Forecast by Age

Total Forecast Labour Force

	2001	2006	2011	2016	2021	2026	2031	2036	2041	2044
Employed labour force	165,185	179,135	178,675	196,996	203,476	212,026	219,354	227,918	239,409	247,284
Unemployed labour force	12,600	15,265	17,690	14,828	15,315	15,959	16,511	17,155	18,020	18,613
Total Labour Force	177,785	194,400	196,365	211,824	218,865	227,985	235,865	245,074	257,429	265,897
Unemployment rate	7%	8%	9%	7%	7%	7%	7%	7%	7%	7%

Total Forecast Labour Force (Rounded)

	2001	2006	2011	2016	2021	2026	2031	2036	2041	2044
Employed labour force	165,000	179,000	179,000	197,000	203,000	212,000	219,000	228,000	239,000	247,000
Unemployed labour force	13,000	15,000	18,000	15,000	15,000	16,000	17,000	17,000	18,000	19,000
Total Labour Force	178,000	194,000	196,000	212,000	219,000	228,000	236,000	245,000	257,000	266,000
Participation Rate	63%	65%	62%	64%	62%	61%	60%	60%	61%	61%
Unemployment rate	7%	8%	9%	7%	7%	7%	7%	7%	7%	7%

Total Labour Force by Age (London City)

Population Age Group	2001	2006	2011	2016	2021	2026	2031	2036	2041	2044
15-24	31,110	31,614	28,418	30,554	29,705	31,975	33,414	33,598	34,165	34,424
25-44	90,475	89,277	89,054	91,721	99,233	106,168	108,731	109,515	110,509	110,873
45-54	39,062	44,677	45,271	45,531	41,956	42,255	47,147	53,841	59,229	63,422
55-64	15,517	24,271	27,427	35,317	37,780	36,102	33,975	35,321	40,110	43,398
65-69	1,004	2,848	3,958	6,035	6,830	7,587	7,935	7,308	7,286	7,011
70+	695	1,712	2,237	2,666	3,288	3,898	4,663	5,491	6,130	6,769
Total Labour Force	**177,785**	**194,400**	**196,365**	**211,824**	**218,792**	**227,985**	**235,865**	**245,074**	**257,429**	**265,897**

London Population by Age (London City)

Population Age Group	2001	2006	2011	2016	2021	2026	2031	2036	2041	2044
0-14	65,728	62,359	60,703	63,427	68,469	72,656	74,650	73,504	71,510	70,185
15-24	47,818	51,742	52,727	51,682	50,245	54,140	56,577	56,887	57,847	58,288
25-44	110,586	107,601	105,499	109,781	118,772	127,072	130,140	131,078	132,269	132,704
45-54	48,311	53,856	57,483	54,198	49,943	50,299	55,566	62,673	67,825	71,907
55-64	29,912	38,319	45,938	51,131	54,697	52,267	48,223	48,674	53,663	56,590
65-69	11,925	12,686	15,498	20,481	23,178	25,746	26,398	23,606	22,629	21,142
70+	32,044	35,678	38,304	43,596	53,502	63,425	74,312	84,133	89,459	93,183
Total Working Age Population	**280,596**	**299,881**	**315,449**	**330,869**	**350,336**	**372,949**	**391,216**	**407,052**	**423,692**	**433,815**
Total Population (incl. Undercount)	**346,324**	**362,241**	**376,152**	**394,296**	**418,805**	**445,605**	**465,866**	**480,556**	**495,202**	**504,000**

Labour Force Participation Rate (London City)

Labour Force by Age Group	2001	2006	2011	2016	2021	2026	2031	2036	2041	2044
15-24	65%	61%	54%	59%	59%	59%	59%	59%	59%	59%
25-44	82%	83%	84%	84%	84%	84%	84%	84%	84%	84%
45-54	81%	83%	79%	84%	84%	84%	85%	86%	87%	88%
55-64	52%	63%	60%	69%	69%	69%	70%	73%	75%	77%
65-69	8%	22%	26%	29%	29%	29%	30%	31%	32%	33%
70+	2%	5%	6%	6%	6%	6%	6%	7%	7%	7%
Total Labour Force	**63%**	**65%**	**62%**	**64%**	**62%**	**61%**	**60%**	**60%**	**61%**	**61%**

Source: 2001 to 2016 Statistics Canada, 2016 to 2044 Watson & Associates Economists Ltd., 2017

Appendix D – City of London Population Forecast

Table D-1
City of London
Population by Selected Age-Cohort, 1991-2044
Population (Including Census Undercount)[1]

Population (Including Census Undercount) [1]

Cohort	1991	1996	2001	2006	2011	2016	2021	2026	2031	2036	2041	2044
0 - 4	22,944	23,205	18,987	18,270	19,766	20,143	21,941	23,396	23,389	22,193	21,144	20,433
5 - 9	21,446	22,561	23,353	20,444	19,873	21,727	22,394	24,232	25,082	24,706	23,810	23,236
10 - 14	19,333	21,850	23,388	23,645	21,064	21,557	24,134	25,029	26,179	26,605	26,556	26,516
15 - 19	20,969	21,140	23,326	25,042	25,348	22,824	23,863	26,716	26,796	27,443	28,023	28,374
20 - 24	28,737	25,932	24,492	26,701	27,379	28,858	26,382	27,424	29,782	29,445	29,825	29,913
25 - 29	33,059	27,524	26,874	28,832	31,051	32,774	33,628	31,538	31,502	32,968	33,657	34,292
30 - 34	30,049	30,727	25,437	24,112	25,263	27,923	31,416	33,819	31,671	31,742	33,779	34,886
35 - 39	26,124	28,721	29,760	25,314	23,965	25,133	28,322	32,564	33,979	31,960	32,121	31,915
40 - 44	23,498	25,814	28,515	29,344	25,220	23,951	25,405	29,151	32,988	34,409	32,711	31,611
45 - 49	17,888	23,134	25,678	28,592	29,224	25,282	24,091	25,751	29,545	33,113	34,684	35,970
50 - 54	14,409	17,323	22,633	25,264	28,259	28,916	25,852	24,548	26,021	29,559	33,141	35,937
55 - 59	13,148	13,956	16,573	21,994	24,361	27,315	28,084	25,017	23,878	25,409	28,906	30,127
60 - 64	12,990	12,569	13,339	16,325	21,577	23,817	26,612	27,250	24,345	23,264	24,758	26,463
65 - 69	12,690	12,122	11,925	12,686	15,498	20,481	23,178	25,746	26,398	23,606	22,629	21,142
70 - 74	9,765	11,501	11,229	11,299	11,965	14,844	19,524	22,014	24,419	25,051	22,503	21,015
75 - 79	7,198	8,113	9,831	9,867	9,908	10,832	13,709	17,757	20,079	22,301	23,048	23,589
80 - 84	4,582	5,357	6,081	8,085	7,976	8,312	9,303	11,462	14,910	17,085	19,159	20,782
85 - 89	2,310	2,803	3,330	4,256	5,694	5,746	6,196	6,804	8,473	11,245	13,172	14,229
90+	1,125	1,312	1,573	2,169	2,761	3,863	4,769	5,387	6,431	8,451	11,577	13,569
Total	**322,300**	**335,700**	**346,300**	**362,200**	**376,200**	**394,300**	**418,800**	**445,600**	**465,900**	**480,600**	**495,200**	**504,000**

Percentage of Population

Cohort	1991	1996	2001	2006	2011	2016	2021	2026	2031	2036	2041	2044
0 - 4	7.1%	6.9%	5.5%	5.0%	5.3%	5.1%	5.2%	5.3%	5.0%	4.6%	4.3%	4.1%
5 - 9	6.7%	6.7%	6.7%	5.6%	5.3%	5.5%	5.3%	5.4%	5.4%	5.1%	4.8%	4.6%
10 - 14	6.0%	6.5%	6.8%	6.5%	5.6%	5.5%	5.8%	5.6%	5.6%	5.5%	5.4%	5.3%
15 - 19	6.5%	6.3%	6.7%	6.9%	6.7%	5.8%	5.7%	6.0%	5.8%	5.7%	5.7%	5.6%
20 - 24	8.9%	7.7%	7.1%	7.4%	7.3%	7.3%	6.3%	6.2%	6.4%	6.1%	6.0%	5.9%
25 - 29	10.3%	8.2%	7.8%	8.0%	8.3%	8.3%	8.0%	7.1%	6.8%	6.9%	6.8%	6.8%
30 - 34	9.3%	9.2%	7.3%	6.7%	6.7%	7.1%	7.5%	7.6%	6.8%	6.6%	6.8%	6.9%
35 - 39	8.1%	8.6%	8.6%	7.0%	6.4%	6.4%	6.8%	7.3%	7.3%	6.6%	6.5%	6.3%
40 - 44	7.3%	7.7%	8.2%	8.1%	6.7%	6.1%	6.1%	6.5%	7.1%	7.2%	6.6%	6.3%
45 - 49	5.6%	6.9%	7.4%	7.9%	7.8%	6.4%	5.8%	5.8%	6.3%	6.9%	7.0%	7.1%
50 - 54	4.5%	5.2%	6.5%	7.0%	7.5%	7.3%	6.2%	5.5%	5.6%	6.2%	6.7%	7.1%
55 - 59	4.1%	4.2%	4.8%	6.1%	6.5%	6.9%	6.7%	5.6%	5.1%	5.3%	5.8%	6.0%
60 - 64	4.0%	3.7%	3.9%	4.5%	5.7%	6.0%	6.4%	6.1%	5.2%	4.8%	5.0%	5.3%
65 - 69	3.9%	3.6%	3.4%	3.5%	4.1%	5.2%	5.5%	5.8%	5.7%	4.9%	4.6%	4.2%
70 - 74	3.0%	3.4%	3.2%	3.1%	3.2%	3.8%	4.7%	4.9%	5.2%	5.2%	4.5%	4.2%
75 - 79	2.2%	2.4%	2.8%	2.7%	2.6%	2.7%	3.3%	4.0%	4.3%	4.6%	4.7%	4.7%
80 - 84	1.4%	1.6%	1.8%	2.2%	2.1%	2.1%	2.2%	2.6%	3.2%	3.6%	3.9%	4.1%
85 - 89	0.7%	0.8%	1.0%	1.2%	1.5%	1.5%	1.5%	1.5%	1.8%	2.3%	2.7%	2.8%
90+	0.3%	0.4%	0.5%	0.6%	0.7%	1.0%	1.1%	1.2%	1.4%	1.8%	2.3%	2.7%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: Watson & Associates Economists Ltd., 2014

1. Net population undercount estimated at approximately 2.73%

Note: Figures may not add precisely due to rounding.

Average Annual Population Growth Rate

Time Period	1991-1996	1996-2001	2001-2006	2006-2011	2011-2016	2016-2021	2021-2026	2026-2031	2031-2036	2036-2041	2041-2044
Persons	13,400	10,600	15,900	14,000	18,100	24,500	26,800	20,300	14,700	14,600	8,800
Annual Growth Rate	0.82%	0.62%	0.90%	0.76%	0.94%	1.21%	1.25%	0.89%	0.62%	0.60%	0.35%

Table D-2
City of London
Population & Household Projections by Age Cohort (2006-2044)

Age Cohort	Population By Age								
	2006	**2011**	**2016**	**2021**	**2026**	**2031**	**2036**	**2041**	**2044**
Under 25	114,100	113,400	115,100	118,700	126,800	131,200	130,400	129,400	128,500
25-34	52,900	56,300	60,700	65,000	65,400	63,200	64,700	67,400	69,200
35-44	54,700	49,200	49,100	53,700	61,700	67,000	66,400	64,800	63,500
45-54	53,900	57,500	54,200	49,900	50,300	55,600	62,700	67,800	71,900
55-64	38,300	45,900	51,100	54,700	52,300	48,200	48,700	53,700	56,600
65-74	24,000	27,500	35,300	42,700	47,800	50,800	48,700	45,100	42,200
75+	24,400	26,300	28,800	34,000	41,400	49,900	59,100	67,000	72,200
Total Population Inc. Census Undercount	**362,300**	**376,100**	**394,300**	**418,700**	**445,700**	**465,900**	**480,700**	**495,200**	**504,100**
Total Population Excl. Census Undercount (Rounded)	**352,400**	**366,200**	**383,800**	**407,600**	**433,900**	**453,500**	**467,900**	**482,000**	**490,700**

Table D-2 (Continued)

* Numbers may not add up due to rounding.

Age Cohort	Total Household by Age of Primary Maintainer								
	2006	2011	2016	2021	2026	2031	2036	2041	2044
Under 25	8,270	8,245	8,407	8,664	9,257	9,600	9,600	9,554	9,514
25-34	23,395	24,920	26,912	28,809	28,940	28,029	28,894	30,223	31,068
35-44	29,170	26,100	26,203	28,683	32,944	35,822	35,732	35,032	34,398
45-54	31,230	33,190	31,591	29,136	29,352	32,492	36,884	40,064	42,564
55-64	22,690	27,540	30,967	33,161	31,697	29,302	29,770	32,939	34,811
65-74	15,035	17,300	21,430	25,660	28,630	30,505	29,395	27,360	25,610
75+	15,730	16,340	17,630	20,770	25,300	30,535	36,395	41,390	44,710
Total	145,520	153,635	163,140	174,882	186,120	196,284	206,669	216,562	222,676

	2006	2011	2016	2021	2026	2031	2036	2041	2044
Persons Per Unit (Incl. Net Census Undercount)	2.49	2.45	2.42	2.39	2.39	2.37	2.33	2.29	2.26
Persons Per Unit (Excl. Net Census Undercount)	2.42	2.38	2.35	2.33	2.33	2.31	2.26	2.23	2.20

Annual Households	2006-2011	2011-2016	2016-2021	2021-2026	2026-2031	2031-2036	2036-2041	2041-2044
	1,623	1,901	2,348	2,248	2,033	2,077	1,979	2,038

Annual Household forecast derived from headship rate approach differs from annual housing units forecast using market forecast approach.

Source: 1991-2006 Headship rate data provided from Statistics Canada Demography Division. Headship rate forecast provided by Watson & Associates Economists Ltd.

Figure D-3
City of London
Residential Growth Forecast Summary

Annual Household Growth, City of London, 1996 - 2044

Census Periods		Singles and Semis	Row	Apartments and Other	Total
		Occupied Dwellings Units			
1996-2001	a	1,083	34	501	1,618
2001-2006	a	625	636	293	1,554
2006-2011	a	1,181	46	408	1,635
2011-2016	a	662	378	861	1,901
2016-2021	e	1,128	516	704	2,348
2021-2026	f	1,062	518	670	2,250
2026-2031	f	894	466	670	2,030
2031-2036	f	892	500	686	2,078
2036-2041	f	772	474	732	1,978
2041-2044	f	693	490	857	2,040
2016-2044					
Avg. Annual		907	494	720	2,121
Total		8,992	4,058	6,382	19,432

Census Periods					
		Percent Distribution			
1996-2001	a	67%	2%	31%	100%
2001-2006	a	40%	41%	19%	100%
2006-2011	a	72%	3%	25%	100%
2011-2016	a	35%	20%	45%	100%
2016-2021	e	48%	22%	30%	100%
2021-2026	f	47%	23%	30%	100%
2026-2031	f	44%	23%	33%	100%
2031-2036	f	43%	24%	33%	100%
2036-2041	f	39%	24%	37%	100%
2041-2044	f	34%	24%	42%	100%
2016-2044		46%	21%	33%	100%

Totals may not add up due to rounding
a: Final Statistics Canada census data
e: Estimates based on actual building permit data from City of London
f: Forecasts by Watson & Associates Economists Ltd.

Source: Watson & Associates Economists Ltd based on data from Statistics Canada Census and from City of London building permit data

Figure D-4
City of London
Summary of Annual Housing Growth, 1996 to 2044

	Year	Population (Excluding Instititional Population)	Instititional Population	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Housing Units					
						Singles & Semi-Detached	Multiple Dwellings[2]	Apartments[3]	Other	Total Households	Person Per Unit (PPU)
Historical	Mid 1996	321,345	4,301	325,646	334,570	69,275	19,470	40,545	445	129,735	2.51
	Mid 2001	332,420	4,119	336,539	345,760	74,690	19,640	43,050	385	137,765	2.44
	Mid 2006	347,470	4,925	352,395	362,050	77,815	22,820	44,515	365	145,515	2.42
	Mid 2011	360,720	5,431	366,151	376,180	83,720	23,050	46,555	310	153,635	2.38
	Mid 2016	378,040	5,782	383,822	394,300	87,030	24,935	50,855	320	163,140	2.35
Forecast	Mid 2019	391,880	6,258	398,139	409,000	90,110	27,200	52,700	310	170,320	2.34
	Mid 2024	416,500	6,967	423,466	435,100	96,230	29,050	56,290	310	181,880	2.33
	Mid 2029	438,370	7,560	445,930	458,100	99,810	32,630	59,500	310	192,250	2.32
	Mid 2034	454,370	8,071	462,441	475,100	105,240	34,400	62,740	310	202,690	2.28
	Mid 2039	468,130	8,558	476,685	489,700	108,390	36,130	68,010	310	212,830	2.24
	Mid 2044	481,420	9,150	490,570	504,000	112,850	38,780	70,740	310	222,680	2.20
Incremental	**Mid 2001 - Mid 2006**	**15,050**	**806**	**15,856**	**16,290**	**3,125**	**3,180**	**1,465**	**-20**	**7,750**	**2.05**
	Mid 2006 - Mid 2011	**13,250**	**506**	**13,756**	**14,130**	**5,905**	**230**	**2,040**	**-55**	**8,120**	**1.69**
	Mid 2011 - Mid 2016	**17,320**	**351**	**17,671**	**18,120**	**3,310**	**1,885**	**4,300**	**10**	**9,505**	**1.86**
	Mid 2016 - Mid 2019	**13,840**	**476**	**14,317**	**14,700**	**3,080**	**2,265**	**1,845**	**-10**	**7,180**	**1.99**
	Mid 2019 - Mid 2024	**24,620**	**709**	**25,327**	**26,100**	**6,120**	**1,850**	**3,590**	**0**	**11,560**	**2.19**
	Mid 2019 - Mid 2029	**46,490**	**1,302**	**47,791**	**49,100**	**9,700**	**5,430**	**6,800**	**0**	**21,930**	**2.18**
	Mid 2019 - Mid 2034	**62,490**	**1,813**	**64,302**	**66,100**	**15,130**	**7,200**	**10,040**	**0**	**32,370**	**1.99**
	Mid 2019 - Mid 2039	**76,250**	**2,300**	**78,546**	**80,700**	**18,280**	**8,930**	**15,310**	**0**	**42,510**	**1.85**
	Mid 2019 - Mid 2044	**89,540**	**2,893**	**92,431**	**95,000**	**22,740**	**11,580**	**18,040**	**0**	**52,360**	**1.77**

Source: Watson & Associates Economists Ltd., 2017.

1. Census Undercount estimated at approximately 2.73%. Note: Population Including the Undercount has been rounded.

2. Townhomes

3. Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Figure D-5
City of London
Low Density Housing Forecast Comparison

	Building Permit	Census	Difference (%)
2006-2011	1422	1,181	83%
2011-2016	954	662	69%

■ Altus ■ Building Permits ■ Watson
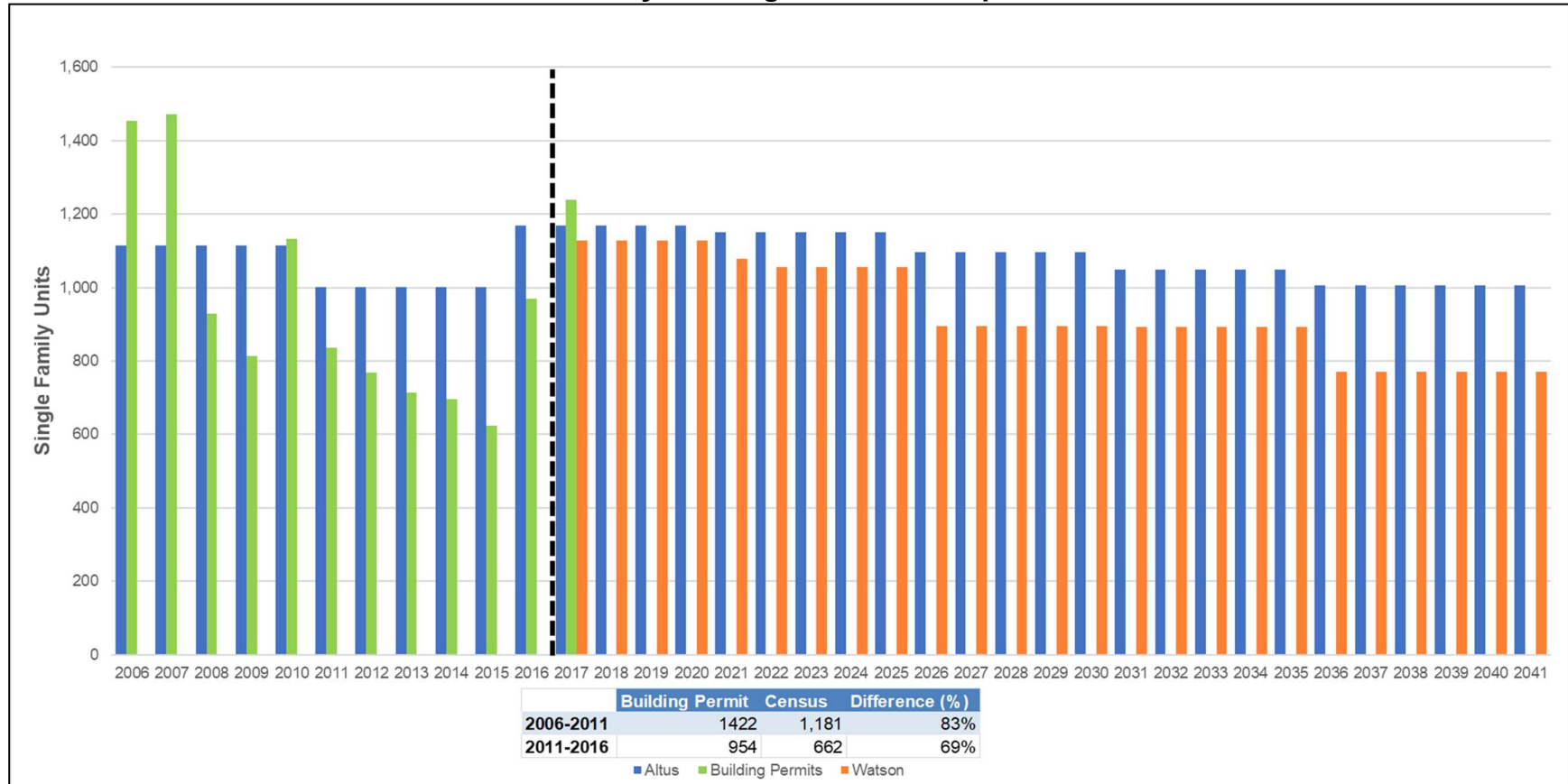
Figure D-6
City of London
Ten Year Growth Forecast
Mid 2016 to Mid 2019

			POPULATION
Mid 2016 Population			383,822
Occupants of New Housing Units, Mid 2016 to Mid 2019	Units (2)	7,180	
	multiplied by persons per unit (3)	2.32	
	gross population increase	16,673	16,673
Decline in Housing Unit Occupancy, Mid 2016 to Mid 2019	Units (4)	163,140	
	multiplied by ppu decline rate (5)	-0.0144	
	total decline in population	-2,356	-2,356
Population Estimate to Mid 2019			398,139
Net Population Increase, Mid 2016 to Mid 2019			14,317

(1) 2011 population based on StatsCan Census unadjusted for Census Undercount.

(2) Estimated residential units constructed, Mid 2011 to the beginning of the growth period, assuming a six month lag between construction and occupancy.

(3) Average number of persons per unit (ppu) is assumed to be:

Structural Type	Persons Per Unit[1]	% Distribution of Estimated Units[2]	Weighted Persons Per Unit Average
Singles & Semi Detached	3.13	35%	1.09
Multiples (6)	2.18	20%	0.43
Apartments (7)	1.77	45%	0.80
Total		100%	2.32

[1] Based on 2011 Census custom database

[2] Based on Building permit/completion acitivty

(4) 2011 households taken from StatsCan Census.

(5) Decline occurs due to aging of the population and family life cycle changes, lower fertility rates and changing economic conditions.

(6) Includes townhomes and apartments in duplexes.

(7) Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Figure D-7
City of London
Twenty Year Growth Forecast
Mid 2019 to Mid 2024

			POPULATION
Mid 2019 Population			**398,139**
Occupants of New Housing Units, Mid 2019 to Mid 2024	*Units (2)*	11,560	
	multiplied by persons per unit (3)	2.47	
	gross population increase	28,521	28,521
Decline in Housing Unit Occupancy, Mid 2019 to Mid 2024	*Units (4)*	170,320	
	multiplied by ppu decline rate (5)	-0.0188	
	total decline in population	-3,194	-3,194
Population Estimate to Mid 2021			**423,466**
Net Population Increase, Mid 2019 to Mid 2024			*25,327*

(1) Mid 2019 Population based on:

2016 Population (383,822) + Mid 2011 to Mid 2016 estimated housing units to beginning of forecast period (7,180 x 2.32 = 16,673) + (163,140 x -0.0144 = -2,356) = 398,139

(2) Based upon forecast building permits/completions assuming a lag between construction and occupancy.

(3) Average number of persons per unit (ppu) is assumed to be:

Structural Type	Persons Per Unit[1]	% Distribution of Estimated Units[2]	Weighted Persons Per Unit Average
Singles & Semi Detached	3.12	48%	1.50
Multiples (6)	2.11	22%	0.46
Apartments (7)	1.68	30%	0.51
one bedroom or less 1.38			
two bedrooms or more 1.87			
Total		100%	2.47

[1] Persons per unit based on adjusted Statistics Canada Custom 2011 Census database.

[2] Forecast unit mix based upon historical trends and housing units in the development process.

(4) Mid 2016 households based upon 163,140 (2011 Census) + 7,180 (Mid 2011 to Mid 2016 unit estimate) = 163,140

(5) Decline occurs due to aging of the population and family life cycle changes, lower fertility rates and changing economic conditions.

(6) Includes townhomes and apartments in duplexes.

(7) Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Figure D-8
City of London
Long-Term Growth Forecast
Mid 2019 to Mid 2029

			POPULATION
Mid 2019 Population			398,139
Occupants of New Housing Units, Mid 2019 to Mid 2029	Units (2)	21,930	
	multiplied by persons per unit (3)	2.46	
	gross population increase	54,006	54,006
Decline in Housing Unit Occupancy, Mid 2019 to Mid 2029	Units (4)	192,250	
	multiplied by ppu decline rate (5)	-0.0323	
	total decline in population	-6,216	-6,216
Population Estimate to Mid 2029			445,930
Net Population Increase, Mid 2019 to Mid 2029			47,791

(1) Mid 2019 Population based on:

2016 Population (383,822) + Mid 2011 to Mid 2016 estimated housing units to beginning of forecast period (7,180 x 2.32 = 16,673) + (163,140 x -0.0144 = -2,356) = 398,139

(2) Based upon forecast building permits/completions assuming a lag between construction and occupancy.

(3) Average number of persons per unit (ppu) is assumed to be:

Structural Type	Persons Per Unit[1]	% Distribution of Estimated Units[2]	Weighted Persons Per Unit Average
Singles & Semi Detached	3.12	48%	1.49
Multiples (6)	2.11	22%	0.47
Apartments (7)	1.68	30%	0.50
one bedroom or less 1.38			
two bedrooms or more 1.87			
Total		100%	2.46

[1] Persons per unit based on adjusted Statistics Canada Custom 2011 Census database.

[2] Forecast unit mix based upon historical trends and housing units in the development process.

(4) Mid 2016 households based upon 163,140 (2011 Census) + 7,180 (Mid 2011 to Mid 2016 unit estimate) = 163,140

(5) Decline occurs due to aging of the population and family life cycle changes, lower fertility rates and changing economic conditions.

(6) Includes townhomes and apartments in duplexes.

(7) Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Figure D-9
City of London
Long-Term Growth Forecast
Mid 2019 to Mid 2039

			POPULATION
Mid 2019 Population			398,139
Occupants of New Housing Units, Mid 2019 to Mid 2039	*Units (2)*	42,510	
	multiplied by persons per unit (3)	2.44	
	gross population increase	103,568	103,568
Decline in Housing Unit Occupancy, Mid 2019 to Mid 2039	*Units (4)*	212,830	
	multiplied by ppu decline rate (5)	-0.1176	
	total decline in population	-25,022	-25,022
Population Estimate to Mid 2039			476,685
Net Population Increase, Mid 2019 to Mid 2039			78,546

(1) Mid 2019 Population based on:

2016 Population (383,822) + Mid 2011 to Mid 2016 estimated housing units to beginning of forecast period (7,180 x 2.32 = 16,673) + (163,140 x -0.0144 = -2,356) = 398,139

(2) Based upon forecast building permits/completions assuming a lag between construction and occupancy.

(3) Average number of persons per unit (ppu) is assumed to be:

Structural Type	Persons Per Unit[1]	% Distribution of Estimated Units[2]	Weighted Persons Per Unit Average
Singles & Semi Detached	3.12	46%	1.42
Multiples (6)	2.11	23%	0.48
Apartments (7)	1.68	31%	0.53
one bedroom or less 1.38			
two bedrooms or more 1.87			
Total		100%	2.44

[1] Persons per unit based on adjusted Statistics Canada Custom 2011 Census database.

[2] Forecast unit mix based upon historical trends and housing units in the development process.

(4) Mid 2016 households based upon 163,140 (2011 Census) + 7,180 (Mid 2011 to Mid 2016 unit estimate) = 163,140

(5) Decline occurs due to aging of the population and family life cycle changes, lower fertility rates and changing economic conditions.

(6) Includes townhomes and apartments in duplexes.

(7) Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Figure D-10
City of London
Long-Term Growth Forecast
Mid 2019 to Buildout

			POPULATION
Mid 2019 Population			**398,139**
Occupants of New Housing Units, Mid 2019 to Buildout	*Units (2)*	52,360	
	multiplied by persons per unit (3)	2.40	
	gross population increase	125,887	125,887
Decline in Housing Unit Occupancy, Mid 2019 to Buildout	*Units (4)*	222,676	
	multiplied by ppu. decline rate (5)	-0.1502	
	total decline in population	-33,456	-33,456
Population Estimate to Buildout			**490,570**
Net Population Increase, Mid 2019 to Buildout			*92,431*

(1) Mid 2019 Population based on:

  2016 Population (383,822) + Mid 2011 to Mid 2016 estimated housing units to beginning of forecast period (7,180 x 2.32 = 16,673) + (163,140 x -0.0144 = -2,356) = 398,139

(2) Based upon forecast building permits/completions assuming a lag between construction and occupancy.

(3) Average number of persons per unit (ppu) is assumed to be:

Structural Type	Persons Per Unit[1]	% Distribution of Estimated Units[2]	Weighted Persons Per Unit Average
Singles & Semi Detached	3.12	43%	1.35
Multiples (6)	2.11	23%	0.49
Apartments (7)	1.68	33%	0.56
one bedroom or less 1.38			
two bedrooms or more 1.87			
Total		100%	2.40

[1] Persons per unit based on adjusted Statistics Canada Custom 2011 Census database.

[2] Forecast unit mix based upon historical trends and housing units in the development process.

(4) Mid 2016 households based upon 163,140 (2011 Census) + 7,180 (Mid 2011 to Mid 2016 unit estimate) = 163,140

(5) Decline occurs due to aging of the population and family life cycle changes, lower fertility rates and changing economic conditions.

(6) Includes townhomes and apartments in duplexes.

(7) Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Appendix E – City of London Employment Forecast

Figure E-1
City of London
Employment Growth Forecast Summary, 2001 to 2044

Annual Employment Growth, City of London, 2001 - 2044

Census Periods		Primary	Work at Home	Industrial	Office	Retail	Institutional	NFPOW [1]	Total
2001-2006	a	-16	22	155	368	971	993	341	2,833
2006-2011	a	4	138	-842	-135	-309	1,361	257	475
2011-2016	e	0	370	323	265	535	1,188	801	3,482
2016-2021	e	0	127	326	364	362	650	242	2,070
2021-2026	f	0	136	355	330	529	656	404	2,411
2026-2031	f	0	130	327	271	551	628	231	2,137
2031-2036	f	0	214	320	339	567	538	309	2,287
2036-2041	f	0	108	254	303	510	457	286	1,918
2041-2044	f	0	80	261	306	556	457	144	1,804

2016-2044

Avg. Annual		0	136	310	320	509	572	278	2,126
Total		0	3,813	8,692	8,954	14,266	16,015	7,789	59,528

Percent Distribution
Census Periods

2001-2006	a	-1%	1%	5%	13%	34%	35%	12%	100%
2006-2011	a	1%	29%	-177%	-28%	-65%	287%	54%	100%
2011-2016	e	0%	11%	9%	8%	15%	34%	23%	100%
2016-2021	e	0%	6%	16%	18%	17%	31%	12%	100%
2021-2026	f	0%	6%	15%	14%	22%	27%	17%	100%
2026-2031	f	0%	6%	15%	13%	26%	29%	11%	100%
2031-2036	f	0%	9%	14%	15%	25%	24%	13%	100%
2036-2041	f	0%	6%	13%	16%	27%	24%	15%	100%
2041-2044	f	0%	4%	14%	17%	31%	25%	8%	100%
2016-2044		0%	6%	15%	15%	24%	27%	13%	100%

Totals may not add up due to rounding
a: Final Statistics Canada census data
e: Estimates based on EMSI data and other available data sources
f: Forecasts by Watson & Associates Economists Ltd.

Source: Data from Statistics Canada Census and EMSI data derived by Watson & Associates Economists Ltd.

Figure E-2a
City of London
Employment Forecast, 2016-2044

Period	Population	Activity Rate										Employment									
		Primary	Work at Home	Industrial	Commercial/ Population Related	Office	Retail/Other	Institutional	Total	NFPOW[1]	Total Including NFPOW	Primary	Work at Home	Industrial	Commercial/ Population Related	Office	Retail	Institutional	Total	NFPOW[1]	Total Employment (Including NFPOW)
Mid 2001	336,539	0.001	0.029	0.126	0.209	0.081	0.128	0.125	0.491	0.042	0.533	465	9,725	42,478	70,443	27,409	43,034	42,070	165,180	14,160	179,340
Mid 2006	352,395	0.001	0.028	0.123	0.219	0.083	0.136	0.133	0.504	0.045	0.549	385	9,835	43,253	77,133	29,246	47,886	47,035	177,641	15,865	193,506
Mid 2011	366,151	0.001	0.029	0.107	0.205	0.078	0.127	0.147	0.488	0.047	0.535	405	10,525	39,043	74,918	28,574	46,344	53,840	178,731	17,150	195,881
Mid 2016	383,822	0.001	0.032	0.106	0.206	0.078	0.128	0.156	0.501	0.055	0.556	405	12,376	40,659	78,917	29,899	49,018	59,778	192,135	21,155	213,290
Mid 2019	398,139	0.001	0.032	0.105	0.204	0.078	0.126	0.155	0.496	0.055	0.551	405	12,758	41,637	81,093	30,990	50,104	61,727	197,620	21,880	219,501
Mid 2024	423,466	0.001	0.032	0.102	0.201	0.077	0.124	0.153	0.490	0.056	0.545	405	13,419	43,353	85,123	32,708	52,416	64,996	207,297	23,577	230,873
Mid 2029	445,930	0.001	0.032	0.101	0.200	0.077	0.124	0.153	0.487	0.063	0.550	405	14,078	45,046	89,309	34,181	55,128	68,192	217,030	25,077	242,107
Mid 2034	462,441	0.001	0.032	0.101	0.203	0.077	0.125	0.154	0.491	0.057	0.548	405	14,980	46,660	93,672	35,741	57,931	71,062	226,779	26,464	253,243
Mid 2639	476,685	0.001	0.033	0.101	0.205	0.078	0.127	0.154	0.495	0.059	0.553	405	15,732	48,060	97,925	37,330	60,596	73,509	235,631	27,940	263,571
Mid 2044	490,570	0.001	0.033	0.101	0.208	0.079	0.129	0.155	0.497	0.059	0.556	405	16,189	49,351	102,137	38,853	63,284	75,793	243,875	28,944	272,819
Incremental Change																					
Mid 2001 - Mid 2006	15,856	-0.0003	-0.0010	-0.0035	0.0096	0.0015	0.00802	0.0085	0.0133	0.0029	0.0162	-80	110	776	6,691	1,838	4,853	4,965	12,461	1,705	14,166
Mid 2006 - Mid 2011	13,756	0.0000	0.0008	-0.0161	-0.0143	-0.0050	-0.0093	0.0136	-0.0160	0.0018	-0.0141	20	690	-4,210	-2,215	-673	-1,543	6,805	1,090	1,285	2,375
Mid 2011 - Mid 2016	17,671	0.0000	0.0035	-0.0007	0.0010	-0.0001	0.0011	0.0087	0.0125	0.0083	0.0208	0	1,851	1,616	3,999	1,325	2,674	5,938	13,404	4,005	17,409
Mid 2016 - Mid 2019	14,317	0.0000	-0.0002	-0.0014	-0.0019	-0.0001	-0.0019	-0.0007	-0.0042	-0.0002	-0.0043	0	382	978	2,176	1,091	1,086	1,949	5,485	725	6,211
Mid 2019 - Mid 2024	25,327	0.0000	-0.0004	-0.0022	-0.0027	-0.0006	-0.0021	-0.0016	-0.0068	0.0007	-0.0061	0	661	1,716	4,030	1,718	2,312	3,269	9,677	1,696	11,373
Mid 2019 - Mid 2029	47,791	0.0000	-0.0005	-0.0036	-0.0034	-0.0012	-0.0022	-0.0021	-0.0096	0.0080	-0.0015	0	1,321	3,409	8,216	3,191	5,024	6,464	19,410	3,197	22,607
Mid 2019 - Mid 2034	64,302	0.0000	0.0003	-0.0037	-0.0011	-0.0005	-0.0006	-0.0014	-0.0058	0.0023	-0.0036	0	2,222	5,023	12,579	4,751	7,827	9,335	29,159	4,584	33,742
Mid 2019 - Mid 2039	78,546	0.0000	0.0010	-0.0038	0.0017	0.0005	0.0013	-0.0008	-0.0019	0.0037	0.0018	0	2,974	6,423	16,832	6,340	10,492	11,781	38,011	6,059	44,070
Mid 2019 - Mid 2044	92,431	0.0000	0.0010	-0.0040	0.0045	0.0014	0.0032	-0.0005	0.0040	0.0050		0	3,431	7,714	21,044	7,863	13,180	14,066	46,255	7,064	53,318
Annual Average																					
Mid 2001 - Mid 2006	3,171	-0.00006	-0.00020	-0.00070	0.00191	0.00031	0.00160	0.00169	0.00266	0.00059	0.00324	-16	22	155	1,338	368	971	993	2,492	341	2,833
Mid 2006 - Mid 2011	2,751	0.0000	0.0002	-0.0032	-0.0029	-0.0010	-0.0019	0.0027	-0.0032	0.0004	-0.0028	4	138	-842	-443	-135	-309	1,361	218	257	475
Mid 2011 - Mid 2016	3,534	0.0000	0.0007	-0.0001	0.0002	0.0000	0.0002	0.0017	0.0025	0.0017	0.0042	0	370	323	800	265	535	1,188	2,681	801	3,482
Mid 2016 - Mid 2019	4,772	0.0000	-0.0001	-0.0005	-0.0006	0.0000	-0.0006	-0.0002	-0.0014	-0.0001	-0.0014	0	127	326	725	364	362	650	1,828	242	2,070
Mid 2019 - Mid 2024	5,065	0.0000	-0.0001	-0.0004	-0.0005	-0.0001	-0.0004	-0.0003	-0.0014	0.0001	-0.0012	0	132	343	806	344	462	654	1,935	339	2,275
Mid 2019 - Mid 2029	4,779	0.0000	0.0000	-0.0004	-0.0003	-0.0001	-0.0002	-0.0002	-0.0010	0.0008	-0.0002	0	132	341	822	319	502	646	1,941	320	2,261
Mid 2019 - Mid 2034	4,287	0.0000	0.0000	-0.0002	-0.0001	0.0000	0.0000	-0.0001	-0.0004	0.0002	-0.0002	0	148	335	839	317	522	622	1,944	306	2,249
Mid 2019 - Mid 2039	3,927	0.0000	0.0000	-0.0002	0.0001	0.0000	0.0001	0.0000	-0.0001	0.0002	0.0001	0	149	321	842	317	525	589	1,901	303	2,204
Mid 2019 - Mid 2044	3,697	0.0000	0.0000	-0.0002	0.0002	0.0001	0.0001	0.0000	0.0000	0.0002	0.0002	0	137	309	842	315	527	563	1,850	283	2,133

Source: Watson & Associates Economists Ltd., 2017.

1. Statistics Canada defines no fixed place of work (NFPOW) employees as "persons who do not go from home to the same work place location at the beginning of each shift". Such persons include building and landscape contractors, travelling salespersons, independent truck drivers, etc.

Figure E-2b
City of London
Employment Forecast, 2016 to 2044

Annual Employment

Forecast Period	Primary	Work at Home	Industrial	Office	Retail/Other	Institutional	NFPOW[1]	Total Including NFPOW
Mid 2001 - Mid 2006	-16	22	155	368	971	993	341	2,833
Mid 2006 - Mid 2011	4	138	-842	-135	-309	1,361	257	475
Mid 2011 - Mid 2016	0	370	323	265	535	1,188	801	3,482
Mid 2016 - Mid 2019	0	127	326	364	362	650	242	2,070
Mid 2019 - Mid 2024	0	132	343	344	462	654	339	2,275
Mid 2024 - Mid 2029	0	132	338	295	542	639	300	2,247
Mid 2029 - Mid 2034	0	180	323	312	561	574	277	2,227
Mid 2034 - Mid 2039	0	150	280	318	533	489	295	2,066
Mid 2039 - Mid 2044	0	91	258	305	538	457	201	1,850

Percentage Annual Employment Growth

Forecast Period	Primary	Work at Home	Industrial	Office	Retail/Other	Institutional	NFPOW[1]	Total Including NFPOW
Mid 2001 - Mid 2006	-1%	1%	5%	13%	34%	35%	12%	100%
Mid 2006 - Mid 2011	1%	29%	-177%	-28%	-65%	287%	54%	100%
Mid 2011 - Mid 2016	0%	11%	9%	8%	15%	34%	23%	100%
Mid 2016 - Mid 2019	0%	6%	16%	18%	17%	31%	12%	100%
Mid 2019 - Mid 2024	0%	6%	15%	15%	20%	29%	15%	100%
Mid 2024 - Mid 2029	0%	6%	15%	13%	24%	28%	13%	100%
Mid 2029 - Mid 2034	0%	8%	14%	14%	25%	26%	12%	100%
Mid 2034 - Mid 2039	0%	7%	14%	15%	26%	24%	14%	100%
Mid 2039 - Mid 2044	0%	5%	14%	16%	29%	25%	11%	100%

Source: 2001 to 2016 Statistics Canada Census/EMSI Data; 2016 to 2044 Watson & Associates Economists Ltd.

Figure E-2a
City of London
Employment and Gross Floor Area (GFA) Forecast, 2016 to 2044

Period	Population	Employment							Gross Floor Area in Square Feet (Estimated)[1]					
		Primary	Industrial	Commercial/ Population Related	Office	Retail	Institutional	Total	Industrial	Commercial/ Population Related	Office	Retail	Institutional	Total
Mid 2001	336,539	465	42,478	70,443	27,409	43,034	42,070	155,455						
Mid 2006	352,395	385	43,253	77,133	29,246	47,886	47,035	167,806						
Mid 2011	366,151	405	39,043	74,918	28,574	46,344	53,840	168,206						
Mid 2016	383,822	405	40,659	78,917	29,899	49,018	59,778	192,135						
Mid 2019	398,139	405	41,637	81,093	30,990	50,104	61,727	197,620						
Mid 2024	423,466	405	43,353	85,123	32,708	52,416	64,996	207,297						
Mid 2029	445,930	405	45,046	89,309	34,181	55,128	68,192	217,030						
Mid 2034	462,441	405	46,660	93,672	35,741	57,931	71,062	226,779						
Mid 2039	476,685	405	48,060	97,925	37,330	60,596	73,509	235,631						
Mid 2044	490,570	405	49,351	102,137	38,853	63,284	75,793	243,875						
Incremental Change														
Mid 2001 - Mid 2006	15,856	-80	776	6,691	1,838	4,853	4,965	12,351						
Mid 2006 - Mid 2011	13,756	20	-4,210	-2,215	-673	-1,543	6,805	400						
Mid 2011 - Mid 2016	17,671	0	1,616	3,999	1,325	2,674	5,938	23,929	1,616,000	1,699,500	430,700	1,299,600	4,156,600	7,472,300
Mid 2016 - Mid 2019	14,317	0	978	2,176	1,091	1,086	1,949	5,485	978,000	924,900	354,500	527,800	1,364,600	3,224,900
Mid 2019 - Mid 2024	25,327	0	1,716	4,030	1,718	2,312	3,269	9,677	1,716,400	1,712,800	558,300	1,123,800	2,288,100	5,686,600
Mid 2019 - Mid 2029	47,791	0	3,409	8,216	3,191	5,024	6,464	19,410	3,408,800	3,491,700	1,037,100	2,441,700	4,525,100	11,412,700
Mid 2019 - Mid 2034	64,302	0	5,023	12,579	4,751	7,827	9,335	29,159	5,022,800	5,346,100	1,544,200	3,804,000	6,534,300	16,905,300
Mid 2019 - Mid 2039	78,546	0	6,423	16,832	6,340	10,492	11,781	38,011	6,423,400	7,153,600	2,060,400	5,099,000	8,247,000	21,829,800
Mid 2019 - Mid 2044	92,431	0	7,714	21,044	7,863	13,180	14,066	46,255	7,714,000	8,943,600	2,555,500	6,405,500	9,845,900	26,520,900
Annual Average														
Mid 2001 - Mid 2006	3,171	-16	155	1,338	368	971	993	2,470						
Mid 2006 - Mid 2011	2,751	4	-842	-443	-135	-309	1,361	80						
Mid 2011 - Mid 2016	3,534	0	323	800	265	535	1,188	4,786	323,200	339,900	86,140	259,920	831,320	1,494,460
Mid 2016 - Mid 2019	4,772	0	326	725	364	362	650	1,828	326,000	308,300	118,167	175,933	454,867	1,074,967
Mid 2019 - Mid 2024	5,065	0	343	806	344	462	654	1,935	343,280	342,560	111,660	224,760	457,620	1,137,320
Mid 2019 - Mid 2029	4,779	0	341	822	319	502	646	1,941	340,880	349,170	103,710	244,170	452,510	1,141,270
Mid 2019 - Mid 2034	4,287	0	335	839	317	522	622	1,944	334,853	356,407	102,947	253,600	435,620	1,127,020
Mid 2019 - Mid 2039	3,927	0	321	842	317	525	589	1,901	321,170	357,680	103,020	254,950	412,350	1,091,490
Mid 2019 - Mid 2044	3,697	0	309	842	315	527	563	1,850	308,560	357,744	102,220	256,220	393,836	1,060,836

Source: Watson & Associates Economists Ltd., 2017.

1. Square Foot Per Employee Assumptions

Industrial	1,000
Commercial/ Population Related	425
Institutional	700

Figure E-2b
City of London
Employment and Gross Floor Area (GFA) Forecast, 2016 to 2044

Annual Non-Residential Gross Floor Area Forecast, 2016-2044

Forecast Period	Industrial	Office	Retail	Institutional	Total
2016-2019	326,000	118,200	175,900	454,900	1,075,000
2019-2024	343,300	111,700	224,800	457,600	1,137,400
2024-2029	338,500	95,800	263,600	447,400	1,145,300
2029-2034	322,800	101,400	272,500	401,800	1,098,500
2034-2039	280,100	103,200	259,000	342,500	984,800
2039-2044	258,100	99,000	261,300	319,800	938,200
2019-2044	308,600	102,200	256,200	393,800	1,060,800
Forecast Period	Industrial	Office	Retail	Institutional	Total
2016-2019	30%	11%	16%	42%	100%
2019-2024	30%	10%	20%	40%	100%
2024-2029	30%	8%	23%	39%	100%
2029-2034	29%	9%	25%	37%	100%
2034-2039	28%	10%	26%	35%	100%
2039-2044	28%	11%	28%	34%	100%
2019-2044	29%	10%	24%	37%	100%

Source: Watson & Associates Economists Ltd.

Figure E-3
Change in Employment Land Sale Prices, 2010 to 2016

Municipality		2010[1]	2016	2010 - 2016 Change	Municipality Imposes Industrial Development Charges
Town of Milton		$411,000	$666,000	62%	Yes
City of Hamilton		$276,000	$375,000	36%	Yes
City of Waterloo		$340,000	$369,000	9%	Yes
City of Cambridge		$224,000	$285,000	27%	Yes
City of Kitchener		$232,000	$267,000	15%	Yes
City of Barrie		$278,000	$260,000	-6%	Yes
City of Woodstock		$75,000	$80,000	7%	No
City of Brantford[2]	City-Owned: General Industrial	$104,000	$75,000	-28%	Yes
	City-Owned: Business Park	$159,000	$125,000	-21%	
	Private Sale Average[3]	$160,000	$135,000	-16%	
City of London[4]	City-Owned: > 4 Acres	$69,000	$65,000	-6%	No
	City-Owned: < 4 Acres	$80,000	$75,000	-6%	
	Private Sale Average[5]	Not Available	$85,000		

Source: Watson & Associates Economists Ltd., 2017.

1. Prices for 2010 have been adjusted to 2016 dollars to account for inflation. CPI is 117.4.

2. City of Brantford reduced land prices at end of year 2010 by $20,000. Prices have remained unchanged since late 2010.

3. Price per acre for private land is typically higher than the City average.

4. The City of London applies a surcharge of 5% to 15% for lots with highway frontage. Land in the Trafalgar Industrial Park is sold at reduced rate of $55,000/per acre.

5. Price per acre for private land is typically higher than the City average.

Appendix F – Middlesex County Population Forecast

Figure F-1
Middlesex County
Population Forecast Projection from Ministry of Finance

Ministry of Finance Population for Middlesex County						
Cohort	**2016**	**2021**	**2026**	**2031**	**2036**	**2041**
0-19	102,500	107,500	113,800	117,900	121,300	122,300
20-34	107,800	112,300	108,100	105,700	107,400	112,900
35-44	58,900	66,600	74,400	78,900	76,600	72,700
45-54	65,200	59,200	60,200	66,200	73,300	77,900
55-74	107,200	121,900	125,300	124,600	122,200	122,600
75+	34,400	41,100	52,300	64,900	79,200	91,600
Total	**476,000**	**508,600**	**534,100**	**558,200**	**580,000**	**600,000**

Middlesex County - Ministry of Finance

Cohort	**2016**	**2021**	**2026**	**2031**	**2036**	**2041**
0-19	22%	21%	21%	21%	21%	20%
20-34	23%	22%	20%	19%	19%	19%
35-44	12%	13%	14%	14%	13%	12%
45-54	14%	12%	11%	12%	13%	13%
55-74	23%	24%	23%	22%	21%	20%
75+	7%	8%	10%	12%	14%	15%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Sources: Statistics Canada estimates, 2016, and Ontario Ministry of Finance projections, 2017.

Figure F-2
Middlesex County
Population Forecast Projections from Altus Group

Altus Forecast (including undercount)						
	2016	**2021**	**2026**	**2031**	**2036**	**2041**
0-19	86,300	89,600	94,600	98,500	101,500	104,200
20-34	90,200	92,300	93,100	92,200	95,600	101,300
35-44	49,600	54,700	58,800	63,000	64,400	62,600
45-54	52,200	47,400	49,200	54,500	58,700	63,000
55-74	87,800	97,600	98,700	97,100	95,600	97,400
75+	29,600	33,900	41,800	50,300	58,700	65,400
TOTAL	**395,600**	**415,500**	**436,300**	**455,600**	**474,600**	**493,900**

Altus Forecast % of Populaton

Cohort	2016	2021	2026	2031	2036	2041
0-19	22%	22%	22%	22%	21%	21%
20-34	23%	22%	21%	20%	20%	21%
35-44	13%	13%	13%	14%	14%	13%
45-54	13%	11%	11%	12%	12%	13%
55-74	22%	23%	23%	21%	20%	20%
75+	7%	8%	10%	11%	12%	13%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario, 2011 Update. Altus Group, 2012.
Note: Includes a 2.7% undercount.

Memorandum

To:	Paul Yeoman, Kevin Edwards	**Fax**	☐
From:	Jamie Cook, Lynn Duong	**Courier**	☐
Date:	October 5, 2017	**Mail**	☐
Re:	Altus Peer Review Comments on City of London Growth Projections	**e-mail**	☒

The following memo provides our response to the Altus Group (Altus) Peer Review of the 2017 City of London Growth Projections Draft Report, hereafter referred to as the draft report.

We appreciate the review and feedback provided by Altus on the draft report. As reflected in thier peer review, the comments provided by Altus can be generally categorized under the following themes:

- Methodology;

- Macroeconomic Content;

- Projection Model;

- Housing Model;

- Employment Model; and

- Floor Space Analysis

In response to the comments provided by Altus as well as the London League of Developers, Watson & Associates Economists Ltd. (Watson) has made a number of revisions to the draft population, housing and employment. Relative to the draft report, the revised population, housing and employment forecast reflects the following changes:

- A slightly higher long-term population and housing forecast (504,000 vs. 499,000 persons by 2044) reflective of higher population at the Middlesex County level

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Planning for growth

Services

▪ Demographics, Pupil Forecasting, Industrial/ Commercial Forecasts	▪ Development/Education Development Charge Policy	▪ Financial Analysis of Municipal Restructuring Options	▪ Fiscal Impact of Development
▪ Land Needs and Market Studies	▪ Long Range Financial Planning for Municipalities	▪ Municipal Management Improvement	▪ O.M.B. Hearings – Financial, Market, Demographic
▪ School Board Planning and Financing	▪ Servicing Cost Sharing	▪ Tax Policy Analysis	▪ Waste Management Rate Setting, Valuation and Planning

(including the City of London)[1] [2]and stronger forecast labour force growth rates relative to historical trends.

- A greater share of population growth derived from natural increase (births less deaths);

- An increased share of forecast housing growth derived from low-density households; and

- Higher forecast labour force and employment growth as well as associated gross floor area.

These revisions have been summarized in our October 10, 2017 presentation to the Development Charges External Stakeholder Committee.

Methodology

In response to the comments provided by Altus, we have included a more comprehensive review of historical economic and demographic trends in our assessment of future population and employment growth for the City of London. This includes an assessment of the following background data and/or documents:

- Historical labour force growth rates at the Provincial and London Census Metropolitan Area (CMA) level;

- Historical birth, death, and net migration by type and age at the Middlesex County level; and

- A review of forecast population growth at the Provincial and Middlesex County level in accordance with the Ministry of Finance Spring 2017 population projections; and

- A review of the Ontario Ministry of Finance Long-Term Report on the Economy; and

- Consideration of other recent federal economic reports.

Macro-Economic Context

- In addition to the additional rigour added to the macro-economic analysis component of our growth model, we also acknowledge the recent developments identified by Altus which are anticipated to drive future population, labour and employment growth within the City. Several of these growth drivers are also identified in our draft report.

Population Model

- In response the comments provided by Altus regarding our assumptions regarding population growth associated with natural increase (births less deaths) we have slightly increased our fertility rate assumptions and reduced our mortality rate assumptions over

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[1] As per Ontario Ministry of Finance Spring 2017 forecast.
[2] It is noted that all references to Middlesex County in this memo include the City of London.

the forecast period. This has resulted in a greater proportion of population growth associated with natural increase, most notably during the post-2031 period of the forecast.

Housing Model

- While the housing forecast by structure type provided in the 2012 Altus Report is tracking well to the 2006 to 2016 Census results, recent residential building permit activity during the 2011 to 2016 period as well as the 2011 to 2016 Census indicates that low-density housing development is not keeping pace with the 2012 Altus forecast.

- It is however noted that year-to-date residential building permit activity (January to July) suggests that 2017 will be a strong year with respect to low-density households.

- In addition to our review of historical housing growth, we have has also reviewed the City's housing supply by development status, location and structure type.

- Since the release of the draft report, we have also reviewed in greater detail the number of medium and high-density housing units currently in site plan applications/consultations.

- Lastly, we have updated our housing propensity analysis by age of household maintainer and household structure type to 2041 based on 2011 Census data.[1] In response to the comments provided by Altus, we have separated the 65+ age group into two categories including 65-74 and 75+. It is noted that applying 2011 housing propensity rates to population forecast by age does not result in a shift in the City's forecast housing mix by structure type.   The result of the 2016 Census data by household maintainer will provide useful insight into this issue.

- While the recent shift in total households by housing structure type between 2011 to 2016 (as per Census data) represents a relatively short time period, our review of active development applications within the planning approvals suggests that the share of medium and high-density housing construction within the near term will likely be higher than previously projected by Altus in 2012.

- In accordance with the comments provided by Altus as well as our additional review, we have moderately increased the share of low-density housing over the forecast period. Our higher overall rate of population growth over the 2016 to 2044 forecast period has also resulted in a greater number of housing units, including low-density households.

While we have moderately increased our low-density housing forecast, it is our opinion that the low-density housing forecast provided in the 2012 Altus report is aggressive. It is also noted that some of the economic growth drivers identified by Altus in their peer review (e.g. Shift, London's Rapid Transit Initiative, High-Speed Rail) are likely to encourage and support medium and high-density housing forms.

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[1] 2016 Census data by household maintainer will not be available until Oct. 25, 2017.

Employment Model

- In response to the comments provided by Altus as well as our review of other recent regional and provincial economic reports, we have increase our forecast rate of labour fore and employment growth rate. This increase is most pronounced during the post 2031 period.

- Our revised forecast labour force annual growth rates for the City of London are as follows:

    o   2011-2021 – 1.4%

    o   2021-2031 – 0.9%

    o   2031-2041 – 0.9%

- Relative to the 2012 report, our revised 2041 employment forecast is higher by approximately 11,500 jobs. In comparison to the 2012 Altus report, our 2041 employment forecast is higher by approximately 7,800 jobs.

    Floor Space Analysis

- As a result of our stronger long-term employment forecast, forecast non-residential gross floor area (GFA) between 2016 and 2044 has been increased by and additional approximately 5.2 million sq.ft. compared to the July 11, 2017 draft report

- Non-residential GFA has been increased for all major employment sectors,

Memorandum

To:	Kevin Edwards; Paul Yeoman	**Fax**	☐
From:	Jamie Cook; Lynn Duong	**Courier**	☐
Date:	October 5, 2017	**Mail**	☐
Re:	Comments from Sandy Levin of the Urban League of London re: City of London Population, Housing and Employment Growth Forecast, 2016 to 2044.	**e-mail**	☒

Provided herein is a summary our responses to the comments received from Sandy Levin of the Urban League of London on August 20th, 2017. These comments address the draft report dated July 24, 2017 entitled, City of London *Population, Housing and Employment Growth Forecast, 2016 to 2044,* prepared by Watson & Associates Economists Ltd.

Planning for growth

Services

▪ Demographics, Pupil Forecasting, Industrial/ Commercial Forecasts	▪ Development/Education Development Charge Policy	▪ Financial Analysis of Municipal Restructuring Options	▪ Fiscal Impact of Development
▪ Land Needs and Market Studies	▪ Long Range Financial Planning for Municipalities	▪ Municipal Management Improvement	▪ O.M.B. Hearings – Financial, Market, Demographic
▪ School Board Planning and Financing	▪ Servicing Cost Sharing	▪ Tax Policy Analysis	▪ Waste Management Rate Setting, Valuation and Planning

1.   **Page iii, fourth paragraph. In the last sentence, affordable housing is identified as a driver for seniors housing. Is this being overstated? Has the increased wealth of people over 75 been factored in?**

        Response: Age specific income data for the City of London was not examined as part of this study. For the Province as a whole, average income is lower for persons aged 65+ relative to total average income for all persons aged 65+. Between 2006 and 2015, the average income of persons aged 65+ has remained well below the average income the total population aged 16+[1]

2.   **Page iv, first paragraph. How sensitive is the gradual increase in share of high-density housing forms? How does it relate to the PPU forecast?**

        Response: The increase in the share of high-density housing forms does not influence the overall PPU forecast. The PPU forecast is determined by the age structure of the population and the associated average headship rates by age of household maintainer (refer to Table D-2 of the draft report).

3.   **Page iv, third paragraph. Does the vacant employment lands calculation include "expansion lands" or underused sites? Also, should discuss vacant existing inventory – i.e. Vacant square footage in existing buildings.**

        Response: The vacant employment land calculation does not include expansion lands or underutilized sites. Such an analysis is considered beyond the scope of this study. In Figure 7-7 (page 7-12 of the draft report) we summarize recent trends in industrial vacancy rates between 2010 and 2016. Over the forecast period it is assumed that that industrial vacancy rates will remain relatively stable.

4.   **Page 5, fourth bullet. Should this retirement/future retirement age group read 65+ rather than 55+?**

        Response: The 55+ age group is referenced here as this generally refers to the age segment of the population which may be considering the City of London as an early retirement, retirement or future retirement destination.

5.   **Page vii, Second Paragraph. Regarding the identified annual employment growth rate and jobs added, does payroll report give a difference answer?**

        Response: We have not assessed payroll report data as part of this assignment.

6.   **Page 2-3, Figure 2-2. The City has experienced an increase in single led households, does this trend continue? How far off were your forecasts from actuals?**

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[1] Statistics Canada, CANSIM Table 206-0052

Response: We have not looked into this issue as this data was not provided in the previous 2012 growth forecast.

7. **Page 2-4, first paragraph. Regarding the "taking into consideration the higher average occupancy of new housing units," what is the source for this? What are the PPUs for first generations vs. later generations? How many Syrian immigrants and does that drive forecast in different housing types?**

   Response: The source for our comment regarding higher average occupancy trends in new housing units is based on custom 2011 Census[1] data for the City of London which summarizes average housing occupancy by dwelling type, number of bedrooms and age of dwelling. We will provide this source data in our final report. 2011 housing occupancy data is only available based on the age of dwelling as opposed to age of dwelling occupant. We haven't investigated the impact of Syrian immigrants in London. In other regions where we have explored this issue, such as the Kitchener CMA, the share of refugees to total immigrants increased considerably in 2016. This increase was noted to be driven by the Syrian refugee re-settlement initiative.

8. **Page 2-4, Demand Factors, fourth bullet. "Market demand for housing intensification" – how much of a factor is this?**

   Response: Housing supply opportunities by stage of planning approval has been summarized in Chapter of the draft report. Housing supply by stage of development by geographic area (including the City's built-up areas) was reviewed as background to this assignment, however, this analysis has not been summarized in the draft report. Historical residential building permit activity from 2004 to 2015 was also reviewed by greenfield versus built-up area.

9. **Page 3-2, last paragraph. The sharp rise in Ontario Housing prices is cited as "a contributor to record consumer debt loads and eroded housing affordability." Is eroded housing affordability also happening in London? Does CMHC have data on this?**

   Response: Recent trends indicate that household income levels in the City of London have not kept pace with rising housing prices. See Figure 4-10 of draft report, housing prices have been steadily increasing annually in the past 5 years at roughly 3%. According to the 2011 and 2016 Statistics Canada Census, the median household total income in 2011 was $56,241, increasing to $62,011 by 2016. This represents an annual increase of 2%.

10. **Page 3-8, Figure 3-5. The participation rate should be added as a column to the chart. Also, is the 2016 number available now from StatsCan? If so, Figure 3-5 and 3-6 should be updated.**

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[1] 2016 Census custom data regarding average occupancy of dwellings by age will not be available until December 2017.

Response: We will include the participate rate in this figure in the final report. However, Labour force data at the Census subdivision (CSD) level i.e. City of London will not be available until November 29, 2017.

11.   **Page 3-9, second bullet point. Is there a breakdown of "NFPOW" employment?**

Response: 2016 Census custom data regarding average occupancy of dwellings by age will not be available until December 2017.We are not aware of a breakdown of NFPOW in accordance with 2011 Statistics Canada labour force data. Previous releases (i.e. 1996) did include a breakdown. Typically, NFPOW is concentrated in construction, warehousing and transportation, and wholesale trade sectors.

12.   **Page 3-18, third paragraph. Quality of life is important, but where are the entry level white collar jobs?**

Response: We have noted that the regional and local economy is shifting towards the service sector, including an increasing share of jobs in knowledge-based sectors. There is also an increasing focus on small to medium-sized business growth.

13.   **Page 4-1. How much of this chapter is actual and how much is derived?**

Response: Net migration data for the City of London has been derived from actual historical births, deaths and population data by age within the City of London. We will provide additional data with respect to actual net migration by type for Middlesex County in the final report.

14.   **Page 4-2, Figure 4-1. Based on the Source note, some of this info appears to be derived? What is actual and what is derived?**

Response: Please refer to above response.

15.   **Page 4-3, first bullet. 0-19 and 20-34 age groups. These are large age groups… are all of these groups drivers of net migration or is it just the 15-19 and 20-24 groups?**

Response: The 20-34 age group has been, as is forecast to continue to represent the largest contributor to net migration in the City of London.

16.   **Page 4-3, Figure 4-2. In the 2011-2016 column. Is this number derived? If so, on what basis and what did you use? Is this legit?**

Response: Refer to above response.

17.   **Page 4-5, last paragraph. It is cited that on average older seniors have "less disposable income." Where does this income figure come from to suggest lower income?**

Response: Please refer to first comment in this memo.

18.   **Page 4-6, last paragraph. It is noted that between 2001 and 2011, percentage of visible minorities increased by 9%. This does not align with what is shown on Figure 4-5?**

        Response: Corrected numbers will be reflected in the final report.

19.   **Page 4-7, last bullet point. Does this number of permits for new high-density residential dwellings distinguish between rental vs. condo units? Is this considered?**

        Response: Our analysis does not distinguish households by tenure.

20.   **Page 4-13, Figure 4-10. The note identifies that this chart includes resales. New housing accounts for only 20% of house sales, should this be noted in the report? Should the housing vacancy rate be noted?**

        Response: If you have additional information you wish to share regarding recent housing sales, we will review.

21.   **Page 5-11, first paragraph. The last sentence speaks to an assessment to help inform and prioritize the phasing of the City's future greenfield areas. Isn't this the role of GMIS (Growth Management Implementation Strategy)? Perhaps a paragraph needs to be inserted explaining the role of GMIS.**

        Response: Perhaps this comment should be directed to the City of London.

22.   **Page 6-3, last paragraph. When discussing the rate of labour force growth, is the role of seniors being overstated? The 55+, especially the 75+? What do these labour force assumptions do to the forecast?**

        Response: The aging of the City's population and labour force does have an impact on the forecast labour force participation rates. Assuming that labour force participation rates steadily rise in the 65+age group over the forecast period (as they have been doing over the past 15 years), would result in a modest increase in the labour force participation rate from 60% to 62%.

23.   **Page 6-4, first paragraph. The third sentence discusses net migration trends within the 0-19 and 20-34 age groups. Are these groups too big? If the age groups are broken down into 5-year increments are some groups much stronger than others?**

        Response: Additional data will be provided in the final report to disaggregate the net migration forecast into small age groups.

24.   **Page 6-5, Figure 6-3. The 2011-2016 period is shown as a historical number. Is this actually a forecast? And if so, how was it derived?**

        Response: 2011 to 2016 net migration has been derived based on our review of Census population growth during the 2011 to 2016 period as well as recorded/estimated births and deaths during this time period (as provided by Vital Statistics Canada). Statistics Canada does not report net migration data at the Census Subdivision (CSD) level. Final net migration estimates for the 2011 to 2016 period for Middlesex County (including the City of London) have not yet be provided by Statistics Canada.

25.   **Page 6-6, Figure 6-4. In the notes it identifies that the 2006-2011 net migration was estimated by Watson. Is this incorrect? Should it read 2011-2016?**

        Response: All historical net migration estimates for the City of London have been derived by Watson & Associates. As noted above, Statistics Canada does not report net migration data at the Census Subdivision (CSD) level

26.   **Page 7-5, fourth bullet point. In discussing projected institutional growth, has excess capacity in existing buildings (churches, schools, etc.) been considered in the forecast?**

        Response: No, we have not address excess capacity of institutional buildings. However, similar to industrial trends, we would expect the institutional vacancy rates will remain stable over the forecast period.

27.   **Pages 7-9 and 7-10. These goods movement sector jobs all have lower rates of employment.**

        Response: Yes, on average employment in the Goods Movement Sector has a relatively lower employment density than other industrial sectors, such as manufacturing.